

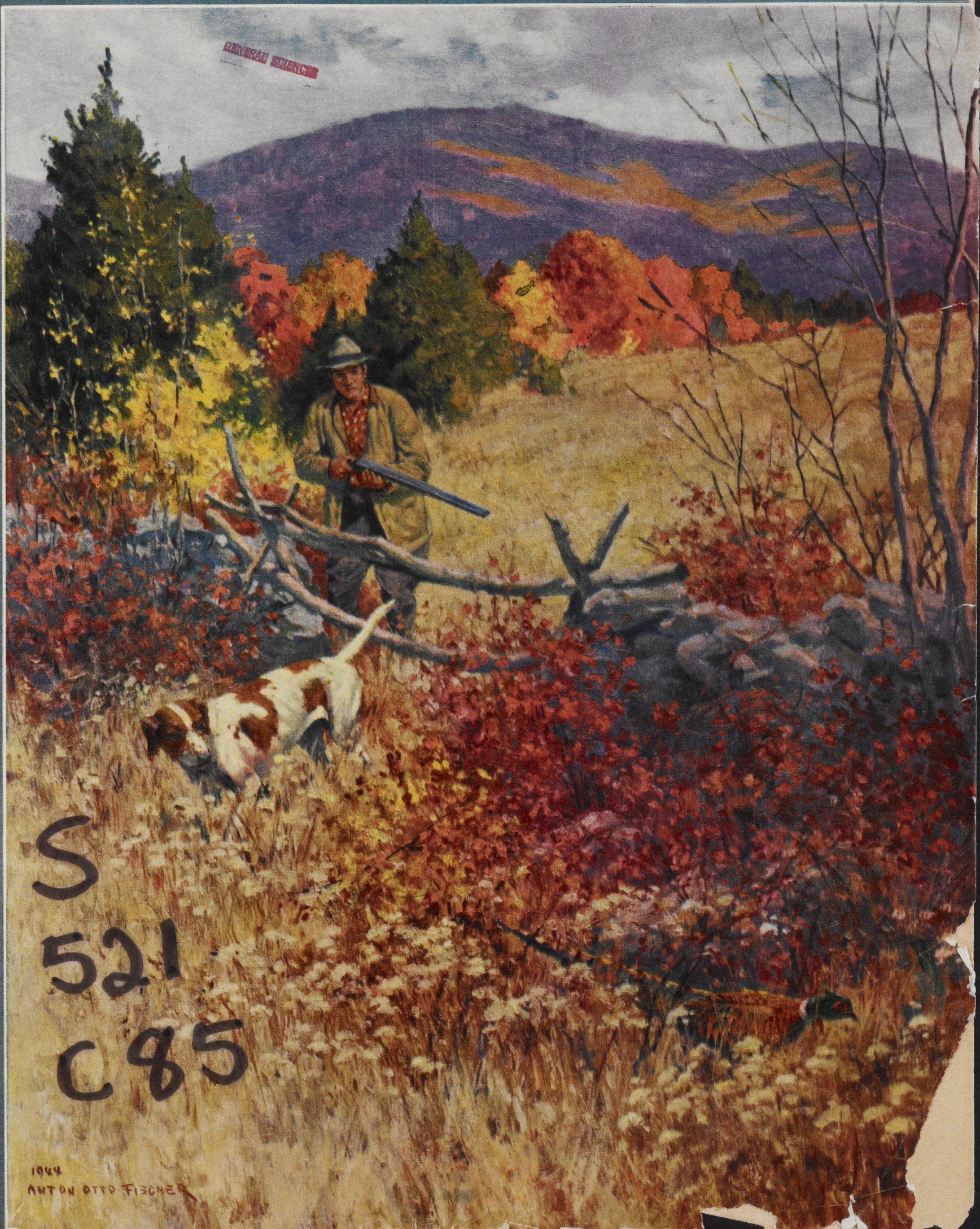
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THE

Country

GUIDE

OCTOBER, 1950



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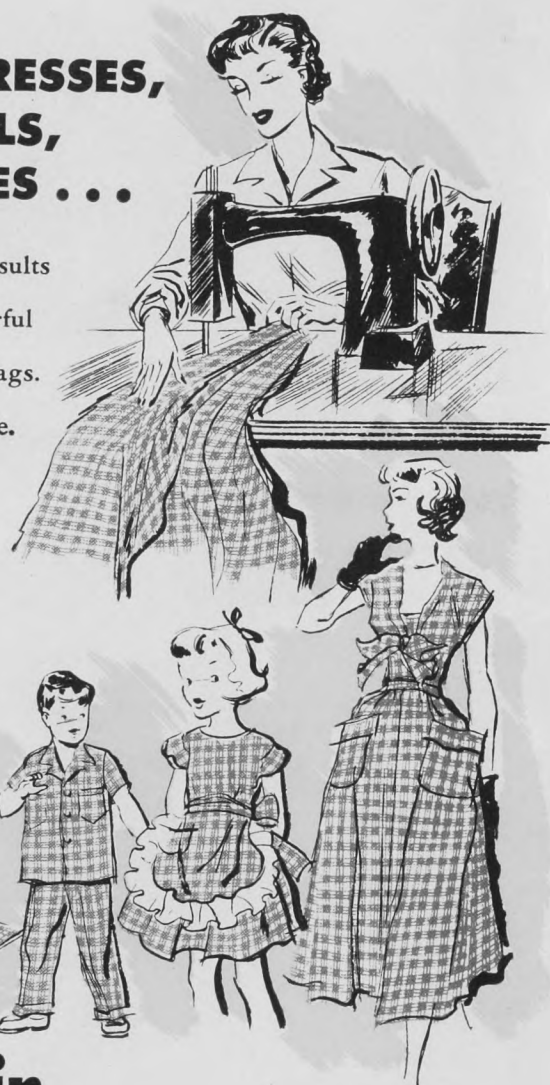
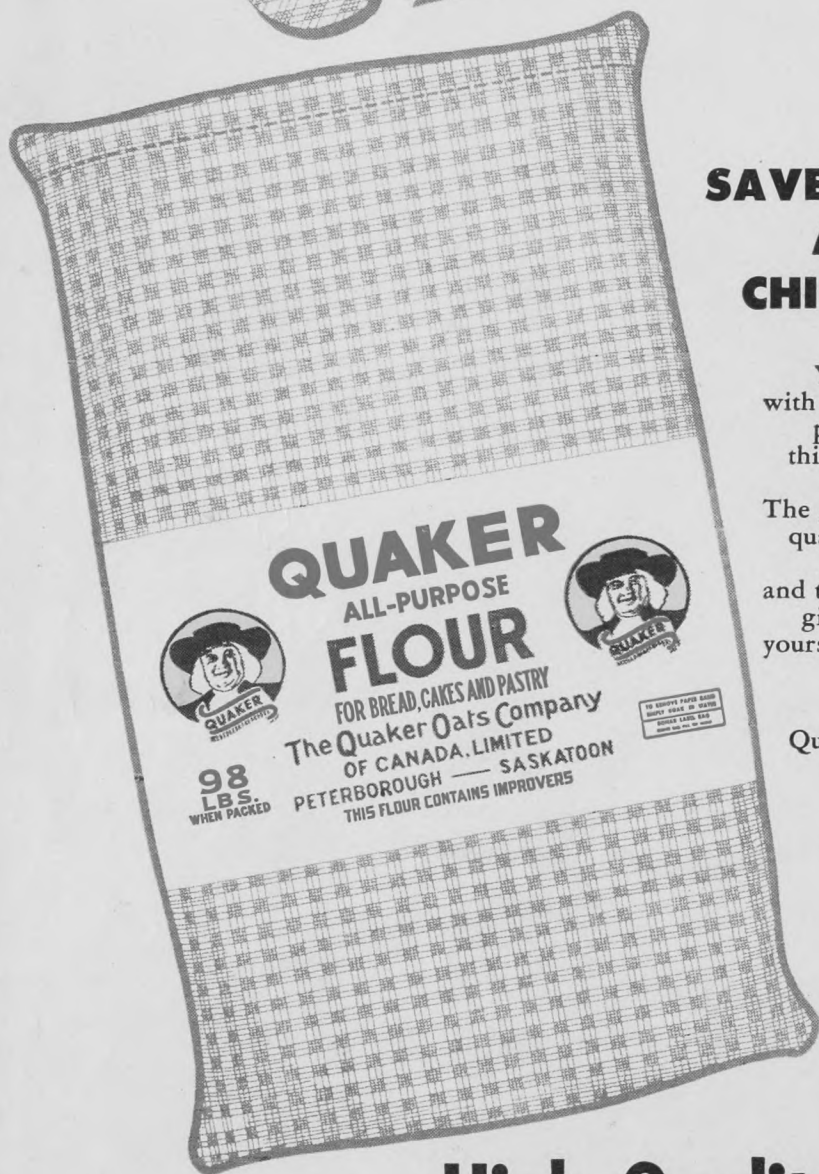
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THE Country GUIDE

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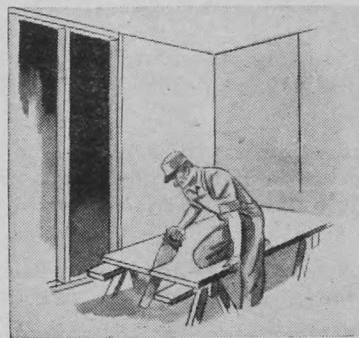
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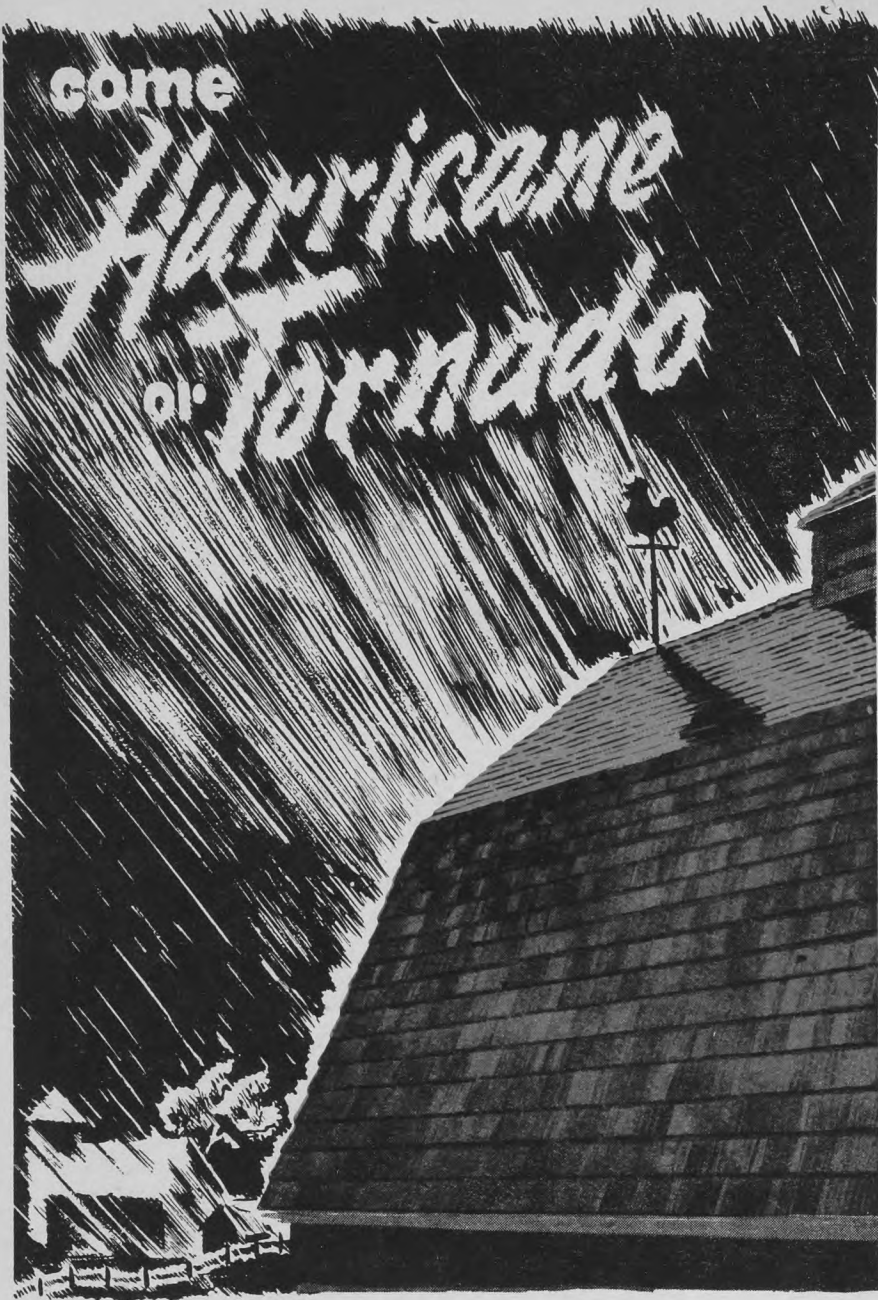
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Under the Peace Tower

YOU hear talk that the recent special session of parliament did big things. Put me down as one who thinks special sessions are a waste of time.

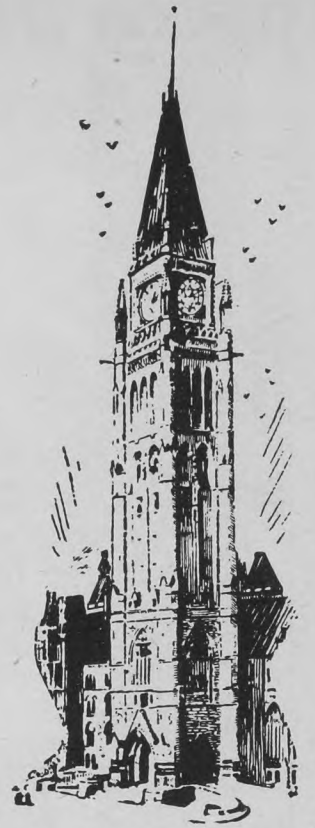
One day in the fall of 1940, I was riding the parlor car from Montreal to Ottawa when I ran across the late Hon. R. B. Hanson, then leader of the Conservative Party. It was never difficult to get this hard-hitting, kind-hearted man going. He had that kind of blood pressure. The gist of it all was that he had a lot of questions he was going to ask the government. Further, he gave the impression that he would not be easily satisfied with answers and he implied he would make it hot for the Liberals. Well, to cut it short, the Tory leader ran out of fire in about two weeks. So did M. J. Coldwell, the C.C.F. chieftain. So did John Blackmore, Social Credit head man. Parliament ran down like a tired clock, and the boys all went home.

Now nobody seemed to have learned anything from that. In the summer of 1941, when parliament folded for the nonce, they decided to meet again in November. They met, and I was there. Let me recall what a critical time it was. We had that spring been booted out of Greece and out of Africa. Pearl Harbor was coming, but all we knew was that the Japs were getting worse. At home, the rigors of Wartime Prices and Trade Board were about to begin. Yet, with all that, parliament just mooched along. I remember well, writing to a national weekly, and describing the whole affair as "a wet firecracker session." Within two weeks, the members had to call it a day.

I saw them convene again several other times, either as a regular session—when the M.P.'s would get their full indemnity—or as an emergency session. I notice, however, that whenever parliament meets in the fall, once more the government treats the commons cavalierly, regards only winter sessions as official. So I am not specifically differentiating between emergency sessions and fall sessions. I am lumping them all alike.

BUT if you want to go back to precedents, I can remember how Hon. R. B. Bennett, fresh from a mandate from the people in 1930, called parliament as quickly as he could. This session lasted three weeks, and then the M.P.'s went home. Tory die-hards might say it was necessary to correct Mackenzie King's iniquitous legislation, and to enact emergency measures. My answer to that was that some of the laws could wait, and anyway, it could have been done by order-in-council. I strongly suspect the real motive that time was the special indemnity. I seem to recall it was treated as a full session, and the boys drew a handsome stipend, a most useful shelter against those dire depression days.

I saw parliament meet in 1932 to ratify Imperial Conference legislation approved at the Ottawa meeting of commonwealth plenipotentiaries in the capital all summer. It could easily have been done by cabinet, or ratified later by commons.



Before we get back to this 1950 emergency session, let me say that there are two important exceptions, which only go to prove the rule. One was when parliament met in the fall of 1939 to declare war on Germany. That was vitally necessary. Again, in 1944, in the conscription, Ralston-zombie crisis, something had to be done. Mackenzie King called parliament, to air the resignation of Hon. J. L. Ralston, to let General Andy McNaughton have his say, and to take a decision about despatching the zombies overseas. Except, however, for these sessions in 1939 and 1944, I can recall no special session that was really needed.

SPECIAL sessions are sought by opposition groups, who want to shoot off their—pardon me, who want to put forward their constituents' views on things. It gives the opposition political leaders a great chance to get back into the limelight. George Drew, M. J. Coldwell and Solon Low have a field day. Others have their brief hour. There is talk, and plenty of it.

But have you noticed how the government quietly undercuts the whole parliament. For a parliament to amount to anything, you have to have two things. You have to make laws. You have to have cabinet ministers give an account of themselves. True, there were a few laws rammed through, at the recent parliament. But again, I have seen more laws than that passed by order-in-council. You will search Hansard and you will see very little effort on the part of the cabinet to talk about their own jobs and roles and plans and hopes. This is no accident. This is government policy. They sabotaged the session, got the boys home. What is more, they slipped over a fast one on them, made them sit morning, noon and night.

Of course, the whole session lingered on by false pretenses anyway. It was convened ostensibly to settle the railway

(Please turn to page 17)

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See how FARMHAND hay handling saves you time, money and manpower ... from field stack ... to wagon ... to yard stack ... or to animals

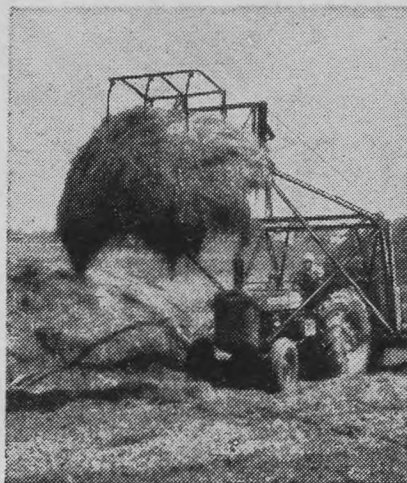
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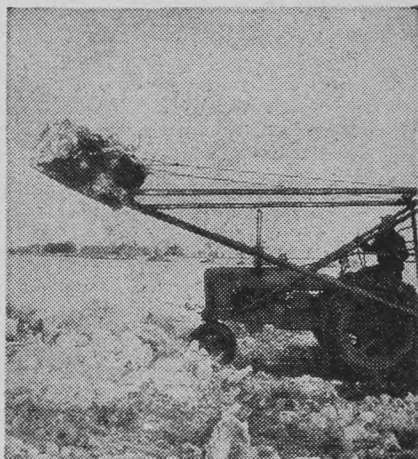
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In every detail, the new Chevrolet is in the very forefront of the style parade. Those flowing, graceful lines radiate quality from every angle. And don't forget — its consistently advanced styling is one reason why Chevrolet is tops for trade-in value.

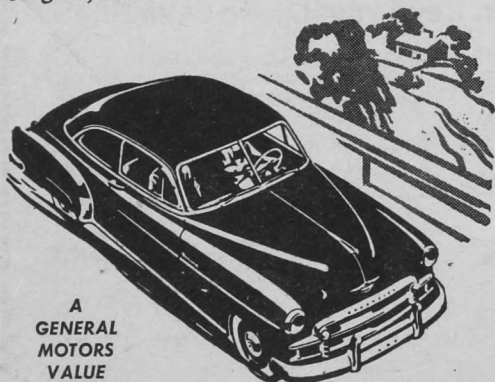
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Just get behind the wheel of a Chevrolet, and you'll soon know the meaning of *brilliant* performance. In city traffic, on busy highways, on rough back roads, Chevrolet has the edge on all its rivals. And it stays at the peak of its performance, — mile after mile, month after month.

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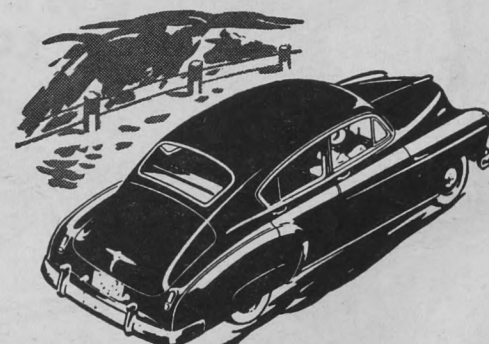
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F-50-C-6

BUILT IN CANADA • PROVED IN CANADA • FOR CANADIANS



The pictures on this page show something of the work of FAO in assisting food production in Asia. Rinderpest, a cattle disease, occasionally decimates Eastern livestock. When it happens, peasants are reduced to the makeshift in the top picture. In the lower pictures, a Siamese technician is engaged in making Rinderpest vaccine, and another one is vaccinating a Siamese herd.

The author, formerly Editor of North China Daily News and Shanghai correspondent of The Times, has travelled extensively in Far Eastern countries and is now in charge of Far Eastern affairs for The London Observer.

THE Northern Koreans' invasion of the South has had one direct advantage, in forcing the Western Powers to realize that the ills of the Far East cannot be cured by conferences. Since November, two of these, at Colombo and Sydney, have been held by the British Commonwealth to consider what was to be done about Southeast Asia; and one at Singapore of Colonial Governors and Far Eastern ambassadors which must rank as a policy-making body since its unanimous recommendations undoubtedly precipitated Britain's recognition of Communist China. Colombo produced nothing but pretty speeches. Sydney was almost farcically disappointing—a meagre £8,000,000 to be spread over three years in general economic help, agreement to work out a six-year plan, and adjournment till September. Korea has shown that events will not wait on such dawdling.

Obviously the masses of Asia must be raised from their poverty and hunger, on which Communism feeds. But there is little hope of this being successfully managed until some order and harmony are restored. In Malaya, after the many errors which have allowed the Communist rising to drag on for two years and even to grow worse, the "Briggs Plan" of campaign, and the recent visit of the British Colonial and War Ministers provide hope that the Communists will be crushed.

BURMA is a terribly weak spot—and directly accessible from China. Before the rains the government had improved its position by the recapture of three or four towns. But communication by rail and river is impossible except under strong escort, and the country at large is controlled by insurgents of various hues. All the best observers agree that the first step to restoration of order is reconciliation between the government and the Karens. But the government has been, to put it mildly, extremely maladroit in its dealings with the Karens, who are now almost incurably suspicious of any offer from Rangoon.

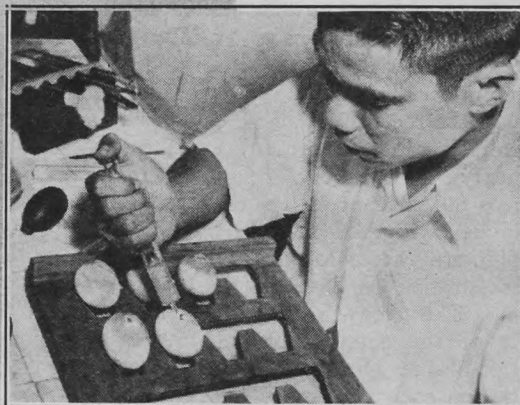
In Siam, the Chinese colony, amounting to one-eighth of the population, has taken down the portraits of Chiang Kai-shek, but has not yet hung up pictures of Mao Tze-tung. Since they include many very rich merchants they may well be warned to keep quiet by the misfortunes of their opposite numbers in China. The Siamese have no inclination toward Communism; they are earning good wages and have plenty of food and clothing; and Marshall Luang Pibul Songgram is a strong ruler. But there is undoubtedly an active underground Communist party, and Siam's future security hangs upon events in Indo-China. It is noteworthy that Luang Pibul has recently been asking Britain and America for arms to defend his frontier.

The Republican Government in Java does not appear to be particularly worried by the Communists, although the dashing Tan Malakka, so often reported dead, is still very much alive in the

ASIA in Ferment

by O. M. GREEN

*Asia cannot be
Russified any
more than it can
be westernized.
Nationalism will
be a potent force
in shaping the
New Asia*



behavior of junior Communist officials. The Communists have succeeded in stopping the headlong inflation of the *jenpiao* (the People's Bank Dollar), but at the cost of paralysis (Please turn to page 57)

[Photos: U.N. Information]

southwest of the island. The situation in Java cannot be regarded without uneasiness.

In the Philippines the revolt of the Hukbalahaps in central Luzon, which began five years ago as a normal rising of peasants against landlords, has developed into open Communism which the mountains and jungle make extremely difficult to repress.

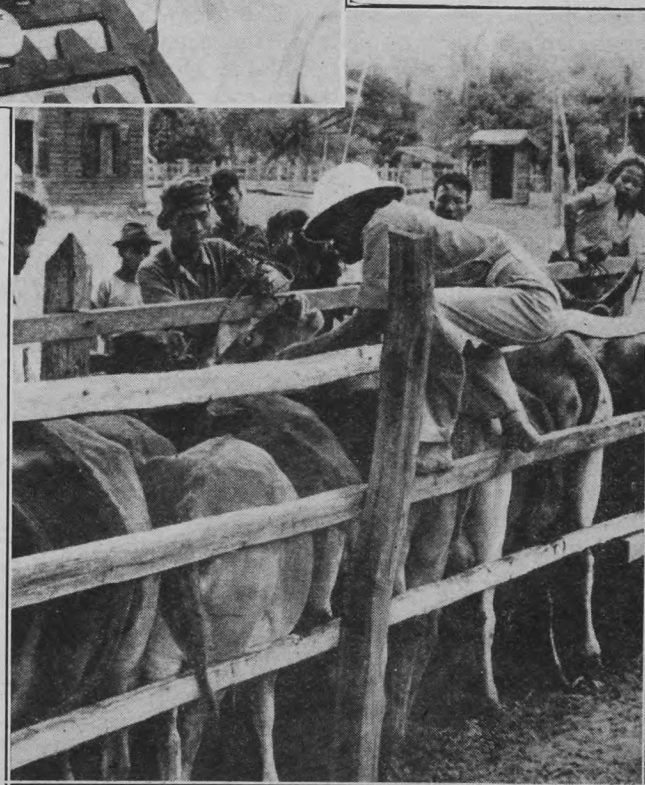
It is common to think of Communist China as breathing forth contagion on all and sundry. Two years ago in his May Day broadcast, Mao Tze-tung said that the Communists' aim was "to liberate the thousand million suffering peoples of Asia from imperialism," and this appears to be the ceaseless burden of Peking's propaganda.

But there is just a possibility that the suffering millions may not want to be liberated by China. To accept arms from China, as the Vietminh is believed to have

done, is one thing; to accept Chinese interference might be quite another. The Chinese are not liked by their brother Asians, no doubt because of their unrivalled cleverness in monopolizing the richest business wherever they go. An old and experienced resident in Burma said to me, when we were discussing the possibilities of a Chinese invasion, "I cannot imagine the Burmese, even the Communists, allying themselves with China."

AND now of China herself. The picture here is distorted by the war in Korea and especially by the United States' decision to set a guard around Formosa and deny it alike to invasion by the Communists and use for bombing the mainland by the Nationalists, and to hold what is still technically Japanese territory as a trustee for the settlement of its future in quieter days. It seems incredible that the Communists would challenge the United States Navy around Formosa. They may vent their anger by sending reinforcements to the Northern Koreans, many of whom fought with them in Manchuria against the Nationalists. One can only guess.

That indeed, we are still largely doing as regards China, but in the past 14 months we have learnt something. It was really extraordinarily stupid of the Communists to blanket all foreign correspondents in China, who would certainly have found much to commend. The high-flown reports by Peking propaganda of industry and agriculture booming cannot be taken without a good deal of salt. China was so badly mauled by 13 years of Japanese invasion and civil war that there has not been time for such wonders of recovery. But undeniably the Communists have done far better than could have been expected, especially in the administration of big towns. The discipline of their troops is beyond praise; the restoration of the chief railways is much to their credit; and above all their hands are clean, taxation has been ferocious but the money no longer goes into the pocket of corrupt officials. Against this, the Chinese people who at first found in the Communists a welcome change from the gross misrule of the Kuomintang have been alienated by crushing taxation, enforced Victory loans, state trading monopolies and the tyrannical





Science for Spuds

An experimental plot of potatoes at Fredericton, N.B. Inset: A greenhouse worker transplanting potato seedlings.

TWO or three months ago the Experimental Farm at Brandon, Man., issued a warning to potato growers in which it was stated that, as a result of disease, "the quality of potatoes grown in this province has in recent years been obviously declining." Just two weeks later the New Brunswick Department of Agriculture reported the inauguration of a farm-to-farm survey of the recently established Potato Disease Control Area in that province. Under the Potato Industry Act of 1939, as brought up to date last year, if 80 per cent of the growers of potatoes within an area who grow more than one acre of potatoes voluntarily agree to pay a fee for the purpose, a Registration or Disease Control Area may be set up. The area already established consists of parts of the counties of York and Madawaska, and all of the counties of Carlton and Victoria. Registration each year must take place before June 30, and a registration fee of 60 cents per acre is required by October 15 of each year.

In Alberta a few years ago a great deal of interest was aroused over the prevalence of bacterial ring rot of potatoes, and today for protection of both grower and consumer, the potato growing districts surrounding Edmonton, Calgary, Brooks, Lethbridge and Vauxhall have been designated pest areas for purposes of bacterial ring rot control. The Brandon farm warning, already referred to, specifically lists not only this disease but wilts, black-leg, spindle tuber, small potato disease, mosaic and leaf roll, in addition to late blight of potatoes, a disease serious for many years in eastern Canada and now regarded as "such a definite annual threat in Manitoba that precautionary measures are recommended."

The lowly spud is not the most extensively produced crop in Canada, although in those areas of New Brunswick referred to, it is exactly that. Though a small province in area, New Brunswick this year has 59,900 acres of potatoes, or almost exactly the same acreage as the provinces of Mani-

toba and Saskatchewan combined. Where the three prairie provinces this year planted 88,700 acres of spuds, the three small Maritime provinces have 126,700 acres devoted to this crop, with a sufficiently higher yield per acre that the province of New Brunswick alone will produce nearly 50 per cent more potatoes by weight than the three prairie provinces combined. Indeed, though the four western provinces combined devoted practically 105,000 acres to potatoes this year, their total yield of the crop is expected to be substantially less than that of New Brunswick, which has only a little more than half the acreage. What actually happens is that in dollars and cents the three small Atlantic provinces account for a little more than one-third of the cash income received in all nine provinces from the potato crop.

THE yield of potatoes in the province of New Brunswick is about 50 per cent more per acre than the average for all of Canada, and about 150 per cent more than the average for the province of Saskatchewan. This yield is twice that of Manitoba, or about 60 per cent above that of Ontario, and one-third greater than the yield in British Columbia, where, though the acreage is less than in any other Canadian province, production is very intensive, and a substantial portion of the crop is marketed as seed potatoes. In Nova Scotia and Prince Edward Island, potato growing is also an

important business, though neither yield nor acreage is quite as high as in New Brunswick.

These facts explain why, when the Federal Government some years ago launched a national Potato Breeding Program, it was centered at the Experimental Station at Fredericton, N.B., though directed by the Division of Horticulture at the Central Experimental Farm, Ottawa. The degree of specialization applied to potato production in the Maritime provinces is emphasized by the fact that, though this crop occupies no more than four per cent of the total Maritime crop acreage, this comparatively small acreage accounts for about one-quarter of the total Canadian potato acreage, more than one-third of Canada's potato production, and about 85 per cent of its certified seed potato production.

More than 30 years ago Maritime potato growers were selecting for improved strains of such well-known varieties as Green Mountain and Irish Cobbler. These early methods of improvement would not be very acceptable today, but, in fact, they were responsible for the development of some strains of the more important varieties, upon which has been founded the very important certified potato seed industry of the Maritime provinces.

IT was in 1915 that the Federal Government established laboratories at Charlottetown, P.E.I., and Fredericton, N.B., for the study of plant diseases. At the same time there was inaugurated a Potato Inspection Service, which had become a necessity because of the prevalence of so-called "degeneration" diseases. These diseases we now know to be caused by a group of organisms called viruses, which are so small that only a very few of them have ever been seen, even with the aid of powerful microscopes. Even today, the only practical, recommended treatment for the control of such virus diseases as mosaic and leaf roll is to uproot and completely destroy affected plants as soon as the disease (Please turn to page 48)

An outline of Canada's national potato breeding program designed to create new varieties resistant to serious potato diseases

by H. S. FRY

Broad Breasted BRONZE

WHERE are the Bakewells, the Booths and the Cruickshanks of today? Are great animal breeders likely to reappear in our time? Has the business of perfecting domestic races of livestock passed into the hands of government stations and to multitudinous rank-and-file breeders, each contributing a small modicum toward a common goal?

The modern student of agriculture ponders these questions and comes up with the conviction that the romance which surrounded the names of the great breeders is a thing of the past. For it is a rare thing to find the required genius, the resources, and the vision all combined in one man young enough to live out his dreams.

And yet, out in British Columbia there is an Englishman, Jesse Throssell, living in the comparative obscurity of semi-retirement, whose achievement in improving the domestic turkey is just as impressive in its way as the historic work of the men who created the British livestock tradition. No less than they, he recognized the shortcomings of the animals of his youth. His eye framed a picture of what they could be. His skill in molding the living form gave us, more than the work of any other man, the Broad Breasted Bronze of today.

Jesse Throssell was born and grew up on a farm at Hitchin, Hertfordshire, 30 miles north of Trafalgar Square. His special education for his remarkable career began by pure accident. About his seventeenth year he spent a year with a relative in Yorkshire who was a gamekeeper. From him he learned a lot of wrinkles about feeding pheasants which he put to constructive use at a later date.

RETURNING home, young Throssell fell into the uneventful round of an English farm boy, working for his dad at no fixed wage, but for a frugal handful of coins for spending money whenever he went to town. The youngster figured he could do better than that. His mother had a good flock of a couple of dozen turkeys. Jesse concluded a bargain with the old man that for the ensuing year he was to have no pay but the income from the turkey flock. Father was to put up the feed, which at farm prices would not amount to much more than the pin money the boy had formerly received.

Before the year was very far advanced Throssell paterfamilias perceived that the boy had driven a sharp bargain. The old man tried to get back the turkey proceeds to stow in his own sock, making some other suitable settlement, but Jesse held him to his bargain. At the end of a year he had cleared £100, a fabulous sum for a teen-age boy in those times. The following year he had to go it alone, with the result that he trebled his income. From then on as a showman and breeder he never looked back.

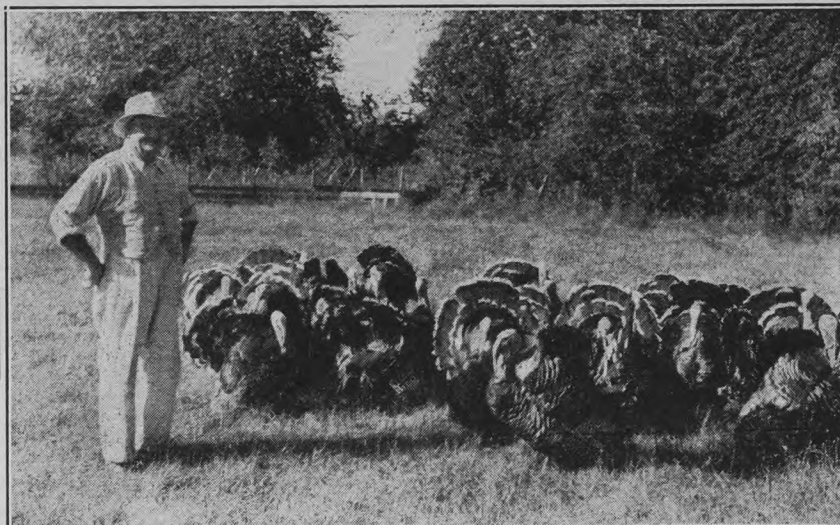
Mr. Throssell tells of one humorous incident which, had it ended otherwise, might have broken this story off here. When the South African war began he went down to London to enlist. Recruits were being signed up in a temporary structure erected in Hyde Park just within the gates. As he was thoughtfully scanning the posters affixed to the wall, a London Bobby, obviously an old soldier, perceiving the farm boy's untravel-

led innocence, growled at him in a broad Cockney undertone, "Ere, young man, don't go inside that gate, or you'll be a dog."

The warning made Throssell think long enough for his ardor to cool off, and so we have what follows.

RETURNING to his turkeys, he became a consistent winner at the Crystal Palace and Smithfield dressed poultry shows, largest in the country, and his flock was beginning to attract notice. It caught the eye of Lord Rothschild, the great financier, who had an estate at Tring not far from Throssell's home town, Hitchin. Rothschild was in the habit of giving turkeys away at Xmas time to his wide circle of business associates, and money was no object in procuring the best. Accordingly he made a contract with Throssell to provide all his requirements, with the further provision for a premium of sixpence a pound for every bird weighing over 20 pounds.

That was a tremendous incentive to grow heavier and better fleshed birds. It led the young breeder to scour England for the best breeding toms that could be bought. But he had started with good female stock. One of the hens turned over to him by his mother, particularly, which belonged to the old Cambridge strain of Bronze turkey, came the nearest to the form that was shaping up in his



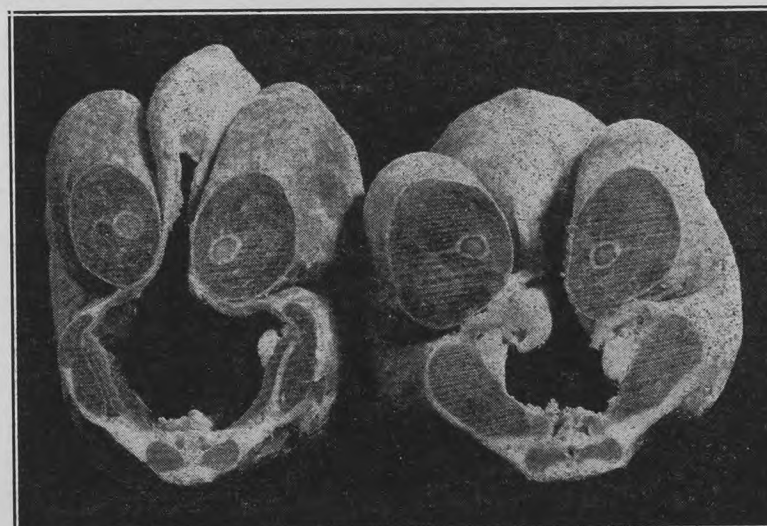
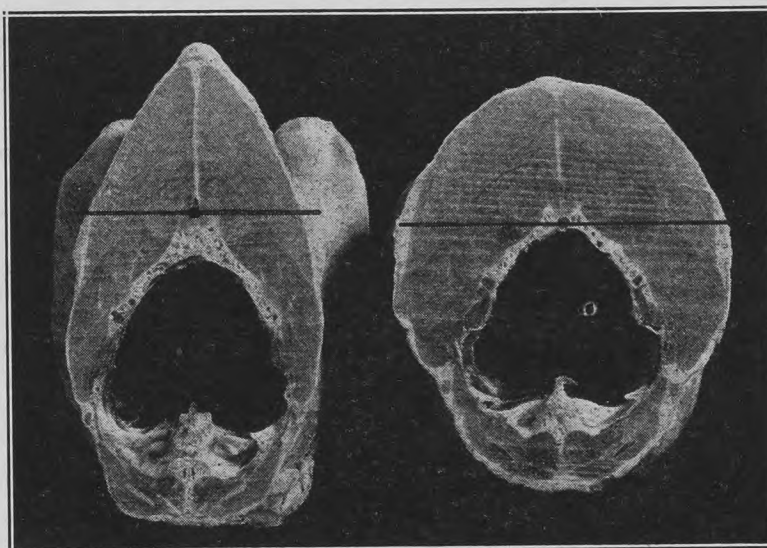
Jesse Throssell with some 1950 turkey toms. Loaded cherry trees behind.

The transformation which the domestic turkey has undergone in our own times is comparable to work of the 18th century breeders who developed our breeds of cattle and sheep

by P. M. ABEL



Mr. Throssell in his buckwheat crop at Aldergrove, B.C.



Typical cross sections; left-hand photos, standard Bronze turkeys; right-hand photos, the heavier fleshed Broad Breasted Bronze.

mind's eye, and her blood soon permeated his breeding stock. Note in passing that the Cambridge strain was a little darker than the general run of Bronze turkeys.

It is interesting to speculate how far Throssell would have gone, had he remained in England steadily pursuing his quest. But in 1904 the wanderlust seized him and he came to earth at Portage la Prairie where he worked for two years as a farm hand close to town. Manitoba could only hold him for two years, after which he returned to England to pick up the scattered threads of his former work. But the first Great War uprooted people with itchy feet all over the world, and at its close Throssell found himself on a cousin's farm in Pennsylvania.

His final migration in the early '20's brought him to a 40-acre farm near Aldergrove in the Fraser Valley. Within a year he had collected and brought over from England enough of his old breeding stock to make a new and very good start. Then began all over again the battle he had waged in England with the entrenched poultry fraternity.

To Jesse Throssell, the purpose in raising turkeys is to produce the most delectable and economical table bird at the lowest cost. While he believed in reasonable adherence to a color standard, he did not

(Please turn to page 42)

[Photos courtesy The Turkey World]



Left, above; the old-fashioned horse drawn power sprayer. Left, below; the latest thing in mechanized sprayers at the Summerland Experiment Station. Right, above; flume and ditch irrigation means laborious work for the man with the hoe. Right, below; aluminum sprinkler systems are replacing gravity irrigation in British Columbia orchards.

by G. E. VALENTINE

Power for Okanagan Orchards

Fruit growers, taking a leaf from the wheat farmer's book, hope to carry out their field operations from a tractor seat

AT last Okanagan fruit growers are getting chances to ease their aching backs and shoulders, soften calloused places on feet and fingers, and develop new ones elsewhere. After years of working almost entirely by hand and ladder, fruit farmers are finding means of mechanization, and it is as great a revolution as when prairie grain farmers changed from stooking-and-threshing to combining.

It took a long time coming, because the fruit grower's problems are so different from the grain farmer's. His main jobs are all concerned with trees—pruning, thinning, picking—and so much selection, so many different movements, are necessary that for many years the orchardist merely sighed with hopeless envy at the sight of his prairie brethren doing most of their work from the seat of a machine.

But the fruit grower has subsidiary tasks as well as his primary work with the trees, just as the mixed farmer has stock to look after as well as grain, and it was in these that relief came first. Throughout June, July and August, every Okanagan fruit grower has to look after irrigation water, life-blood of his trees, two days a week for every five acres. As these are the busiest months for thinning apples and pears, and picking cherries, peaches, and other soft fruits, irrigation is not a welcome task.

The water is run through open ditches between the tree rows, and in order to cover a whole orchard has to be changed from one set of ditches to the next, every four hours or so. In between times it often keeps a man busy clearing plugged ditches, making sure water gets all the way down—"chasing water at the end of a hoe," as orchardists put it—so that on the average-sized 10-acre orchard there are four days a week—plus frequent Sundays—when one man is either rushed to death, or pretty well withdrawn from regular tree work.

So firmly did the idea of open-ditch irrigation become engrained in the Okanagan economy, that 10 years ago many Okanaganians insisted that it was the only thing for gardens as well as for orchards, and nothing but lawns were sprinkled. The idea that an orchard could be watered by sprinkling was undreamed of; even if you left it

on long enough to soak the soil, how would you spread it over the whole orchard?

About 15 years ago the answer to that was found in the United States in aluminum, which makes possible a 30-foot length of two-inch pipe so light it can be lifted with one finger. Experiments with portable aluminum pipes that could be moved right across an orchard were very successful, and as soon as the end of the war made aluminum available again, the change to sprinkler irrigation swept across the border into the Okanagan.

IT costs a lot more to instal than the old system, for instead of a main line of open flumes or troughs, of wood or metal, opening into dirt ditches, sprinkler irrigation for orchards demands a buried iron pipe with hydrants rising from it at intervals, plus enough lengths of aluminum pipe,

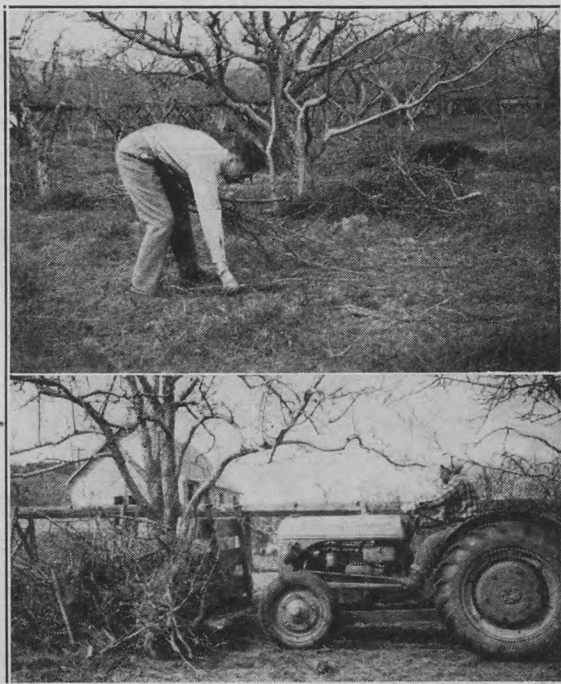
with an automatic revolving sprinkler on each, to cover the entire orchard. Not all at once, though; the portable aluminum pipes are changed periodically, and as long as the whole orchard gets a 12-hour sprinkling once a week, or even once in two weeks if the soil is heavy, the results are entirely satisfactory.

The beauty of sprinklers, besides a more thorough watering, is that it takes only about an hour a day to make the changes; the rest of the time the grower can work with his trees. True, it is every day instead of just two days per week per five acres, and so it is as much of a tie as cows to milk. But the saving of time and wages is so obvious that probably 40 per cent of Okanagan farmers have installed sprinklers in the last five years, and others are buying them so rapidly that some municipalities are thinking already of changing over their irrigation supply system of flumes to a system of pressure pipes.

In a few years the picturesque steel and concrete flumes will no longer be a part of the Okanagan scene; the gurgle of running water will be entirely replaced by the sh-sh-sh-sh of the sprinklers, and best of all, the all-day tramping back and forth of the wet-footed "man with a hoe" will have given way to a casual half-hour before breakfast and after supper.

SECOND labor-saving improvement that has recently come to the Okanagan is in the other big subsidiary job—spraying. For 40 years after its arrival from the United States about 1905, the codling-moth, menace to apple and pear growers, grew steadily worse, until by 1944 the only way growers could keep their fruit reasonably safe from the pest was to put on six sprays of lead arsenate or cryolite every season, about 10 days apart.

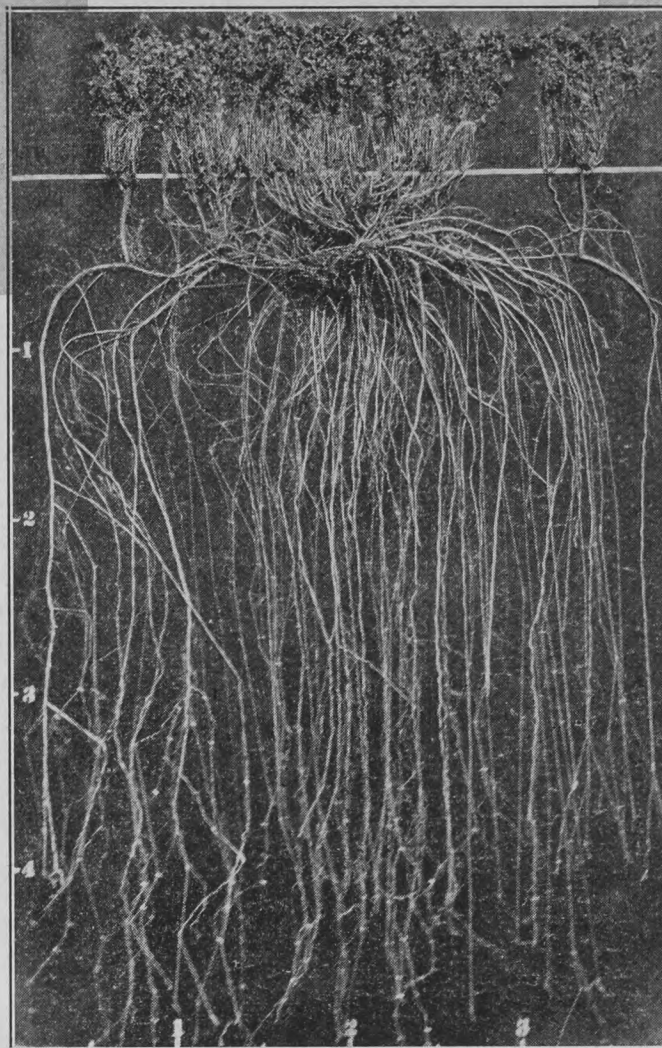
To get thorough coverage, each spray took up to two days per 10-acre orchard, and required three men, one to drive the tractor pulling the spray tank, two others with spray guns on 50-foot hoses to tramp around and spray the trees. It was a wet, monotonous, tiring job, and getting extra men just for spraying was not easy, so that the work was usually done by custom outfits, which were not always able to (Please turn to page 50)



Removing clippings after pruning. Above: Old style. Below: New style.

ALFALFA that creeps

by D. H. HEINRICH



The root system of a creeping-rooted strain of alfalfa showing new shoots from lateral roots.

There is good reason to believe that in five years, prairie farmers will be able to sow an alfalfa with creeping roots that will stand heavy pasturing and severe winters

ALFALFA, known around the world as the king of fodders, because of its high yield and excellent feeding value, is insufficiently known to the Canadian plains' farmer and rancher. Although the crop is grown successfully on irrigated land and on certain moist locations, it does not do well in the drier areas, particularly if subjected to grazing.

Experiments everywhere indicate that grass-legume mixtures yield about twice as much as grasses grown alone. Of all the legumes tried out in the prairie region, alfalfa has proved to be the most productive and persistent. However, even the hardiest common varieties, such as Grimm and Ladak, do not persist through several dry years; and, if pastured for one or two seasons, all alfalfa disappears, even during relatively wet years. As soon as the alfalfa is gone, the carrying capacity of the pasture and the productivity of the hayfield is reduced by one-half.

How much alfalfa influences the productivity of hayfields is well illustrated in a hay production test at Swift Current. In this test, crested wheat grass yielded an average of only two-fifths of a ton per acre over an eight-year period, while a mixture of crested wheat grass and alfalfa produced a yield of one ton per acre for the same period. Similarly, brome grass alone yielded one-half ton per acre, while the brome-alfalfa mixture yielded twice as much hay. It is, therefore, important to grow a grass-alfalfa mixture for maximum production.

Why does the inclusion of alfalfa in a mixture increase production to such a very marked degree? The answer, of course, is because it has the ability to use nitrogen from the air and, with it, ensures an ample supply of this important nutrient for itself, as well as other plants growing together with it. The sod-bound condition of grassland is usually due to a lack of sufficient available nitrogen for efficient growth.

It will be evident to the reader that a hardier type of alfalfa is needed for the prairies if maximum production of forage is to be attained from the hay and pasture lands.

IN the course of three trips to Siberia as Agricultural Explorer for the United States Department of Agriculture (1897-1898, 1906, 1908-1909), Dr. Nils E. Hansen discovered and brought back with him yellow-flowered alfalfas (*Medicago falcata*). The yellow-flowered alfalfa, generally known as Siberian, was found growing wild on the dry steppes of Siberia, in a climate similar to that of the Canadian prairies. Dr. Hansen reported that yellow-flowered alfalfa was thriving north of Yakutsk, with a winter temperature of minus 85 degrees Fahrenheit. In 1906, this man of vision stated: "My estimate still holds that this Siberian alfalfa will extend the alfalfa belt on

this continent to the Arctic Circle, whenever that becomes necessary."

Experiments conducted in the United States, Canada, and Alaska bear out the fact that the yellow-flowered alfalfa is much more cold and drought-resistant than the blue-flowered, common varieties, such as Grimm and Ladak. Siberian is the only variety which has survived at the Experimental Station in Palmer, Alaska. Dr. H. S. Hodgson, who this year visited a number of Experimental Stations in Canada, told the writer that stands of Siberian alfalfa 20 years old are still producing heavily at the Palmer Station. In addition to its extreme cold tolerance, it has been found that Siberian is very resistant to grazing by livestock and stands in North and South Dakota, Saskatchewan, and Alberta have persisted for more than 20 years under heavy pasturing without many signs

of killing. It is believed that the low crown, characteristic of all yellow alfalfas, is responsible for its long life, even when heavily utilized under arid climatic conditions.

The question comes up, "Why is Siberian alfalfa not more widely grown?" The answer is that all the yellow-flowered alfalfas shell their seed through a long season, which is nature's way of securing and maintaining a stand in its native country, where, in many regions, the annual rainfall is only eight inches. This character, although desirable in its natural habitat, is undesirable in a cultivated variety, because of the impossibility of producing seed on a commercial scale. Another reason may be the tendency for plant breeders to discard the variety, because it has yielded less than common varieties in tests conducted under more or less favorable conditions. The plant breeder can be wrong as well as anyone else and often he overlooks qualities in a crop that may later prove to be most desirable.

THE possibility of using the yellow-flowered Siberian alfalfa for developing hardier alfalfa varieties for the Canadian prairies was recognized by a number of forage crop breeders in Canada. As a result of this, a breeding program was undertaken at the Dominion Experimental Station, Swift Current, Saskatchewan, in 1938. At this time, two well-known forage crop scientists, Dr. S. E. Clarke, now retired, and Dr. J. L. Bolton, now at the Forage Crops Laboratory, Saskatoon, Saskatchewan, selected Siberian and Ladak plants in an old, spaced nursery which had lived through the drought years just prior to 1938. The main objective of the breeding work was to combine the pasture qualities of Siberian with the good seed-producing quality and growth vigor of the Ladak variety.

The first phase of the work consisted of making crosses between a great number of Ladak and Siberian plants and of establishing spaced populations of their progeny (offspring) in breeding nurseries. The plants in the nursery were studied individually and those having a combination of such desirable characters as creeping-rootedness, erect growth, and fair seed-set were selected for further work.

Creeping-rootedness was regarded as the most important single character desirable in a pasture type; and practically all first generation plants selected expressed this character. Out of tens of thousands of first generation plants, less than five per cent were creeping-rooted. In many instances, several creeping plants were found among the offspring of certain Ladak and Siberian crosses, even though neither parent expressed this

(Please turn to page 31)



This plant has crept so steadily that its spread is greater than the man's reach.

Call Me Cupid

by KATHERINE HOWARD

WHEN the farmers of Crystal Creek were clearing more acres of their heavy bush for breaking and needed a good man to help with the blowing out of the big stumps or the occasional huge stone, they always got old Jim Taggart.

The old man had been a miner in his youth, and was unusually careful and reliable. You could trust old Jim to move the most stubborn stump of spruce, no matter how large and unyielding. He seemed to understand dynamite.

Now, sitting across the table from Bill Wakefield in the kitchen of Bill's farm home, old Jim put down his coffee cup and smacked his lips. "You

Old Jim's tone was casual, but the keen grey eyes under the bristling grey brows were anxious. "Here you are, 28, just the right age, not bad looking, got a nice farm, nice house, no relations to mess things up . . . but you never give the girls a second look."

At the annoyed frown that creased Bill's brown forehead, old Jim hesitated. Then he went on briskly, as if performing a task he had set himself, "Besides, look at the time you'd save, cooking and all . . . There's plenty of nice girls around Crystal Creek, Bill."

"Name one." Bill's tone was short.

Old Jim stared at the tall dark figure. "Dang

together and a small nerve throbbed under his skin at the edge of his jaw. "Only the girl I wanted said she would have me. But when I went overseas she married the other guy."

He turned abruptly and picked up the water pails. "Guess I'd better start chores," he said. "See you bright and early in the morning, eh?"

OLD Jim walked slowly along the road west from the Wakefield farm. His homestead and shack lay two miles west and north, and he walked along, swinging the walking cane of wild cherry-wood, which he had made and liked to carry, at the weeds which were springing up along the roadside.

"Dang it all," he muttered. "Too bad that kid don't get married. Too bad he can't find someone. If he don't watch out, he'll end up like me, no folks of his own. No wife. No home life. Long before he's 70 he'll know what he's missed."

Puffing fiercely at his short-stemmed pipe, old Jim left the rutty sides of the road and stepped along the smoother center, his mind on many things, his thoughts a medley of past and present, what was and what might have been, when suddenly he heard a loud and impatient blaring of a car horn and at

Old Jim Taggart had never read military history but he had a good working knowledge of both strategy and tactics



sure make a swell cup of coffee, Bill," he said appreciatively. "In all my 70 years I've never tasted a better."

Bill grinned wryly. "It's no trick." He waved a nonchalant brown hand. "It's a good thing, though, that I can. What would I do if I couldn't make coffee, me being a lone bachelor and all?" For a minute his mouth twisted and his dark eyes looked lonely.

Old Jim looked at him affectionately. "Bet you never had coffee like that in the Air Force," he said. He pushed back his chair, took out his quid of pipe tobacco and started cutting.

"When do you aim to dynamite the stumps, Bill?" Then, watching Bill's hands which were busy rolling a cigarette, the old man said, "Hey! You'd better put something on that scratch you've got there. That was a wicked looking root you tore your hand on."

BILL shrugged, got up and walked to the window. He looked out toward the far fields where piles of gnarled and twisted roots were scattered like teepees. "It's nothing. Guess we'll burn the piles tomorrow, if we can, and get at the stumps. Darn it! I wish I could get a cook."

"Why'n't you get yourself a girl and get married?"

The anger faded from her eyes and she smiled as she said, "You look tired. Wouldn't you like a ride?"

They were shouting and running toward him.

me! I guess I couldn't," he said slowly, "but surely there must be a girl for you somewhere . . ."

He looked up into Bill's dark eyes and at his wistful expression. The sarcastic curve left Bill's well-shaped lips, and he said, "Forget it, Jim."

"I can't," said the old man. He got up and stood erect and straight of shoulder, for all his 70 years. "Bill, I think a lot of you. We've got along fine ever since you came out of the Air Force and bought this place. I hate to think of a nice lad like you having the kind of life I've always had. It's lonesome, Bill." Sudden misery clouded the old grey eyes.

Bill laid his hand on the old man's thin shoulder in his leather jacket. "Well, then, Jim," he said gently, "why didn't you ever get married?"

"Eh? What's that?" Jim looked up into Bill's face. He laughed ruefully. "I guess . . . I guess it was because she wouldn't have me . . . The girl I wanted, I mean."

Bill said, "Same here, Jim." His dark brows drew

the same time the screech of brakes hastily applied.

Old Jim Taggart jumped and stared around. "For Pete's sake!" he shouted.

Behind him, almost touching him, was a small blue coupe, and peering from it was the flushed and excited face of a girl, a very pretty girl, Jim could plainly see.

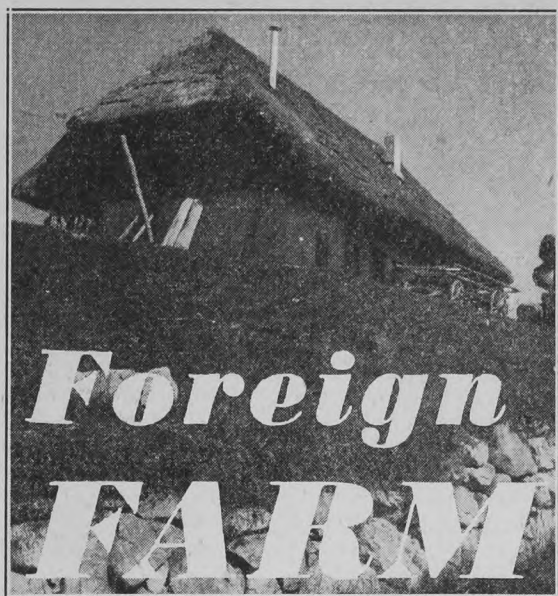
"What's the matter with you?" Anxiety coupled with exasperation was in her clear voice. "Why don't you keep to the side of the road. I turned out of the lane and I could easily have hit you . . ."

"You're mad," said old Jim. He went to the side of the car and looked down at her sparkling blue eyes and smooth brown head. "You're real mad, ain't you? I can't say as I blame you. But a voice as pretty as yours shouldn't be used for scolding . . ."

The anger faded from her eyes and she smiled as she said, "You look tired. Wouldn't you like to ride? I'm going past the store."

As Jim's grey eyes smiled back at her, she said, "And don't think (Please turn to page 85)





Left: A farm house in the French village of Foeclaz, Savoie. Above: Buildings on a large Danish farm.

by JOHN D. BRADLEY

Foreign FARM Construction

WHENEVER farmers travel through a countryside, they usually observe and remark more about the farm buildings than any other phase of what they see. This is because a glance at a set of buildings will disclose much information as to the type and condition of the farm. Similarly in Europe, the farm buildings, which differ considerably from those in Canada, give one much information as to the nature of the farm.

One sees the permanence of the buildings as compared to most farm buildings in Canada. Many of the farmsteads in the northern countries had been built anywhere from 100 to 300 years ago. Those, which have been continually occupied and were not damaged by war, appear to be in a good state of repair, despite their age. Contrast this with Canadian wooden buildings, which date back to even 1850.

It is as difficult to generalize about buildings in Europe as it is those in Canada. They differ according to the district, type of farming, climatic region, and available building materials. It can be said though, that by far the largest proportion of European farm buildings are of stone, just as in our country, wood predominates. The durability of this type of material, together with excellent workmanship, combines to produce buildings which seem indestructible. In many cases, entire outside walls are of stone, and even partitions, stanchions and interior walls are of this same lasting material.

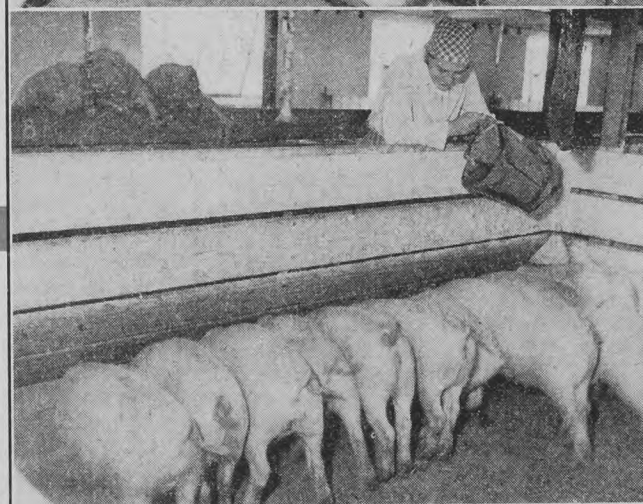
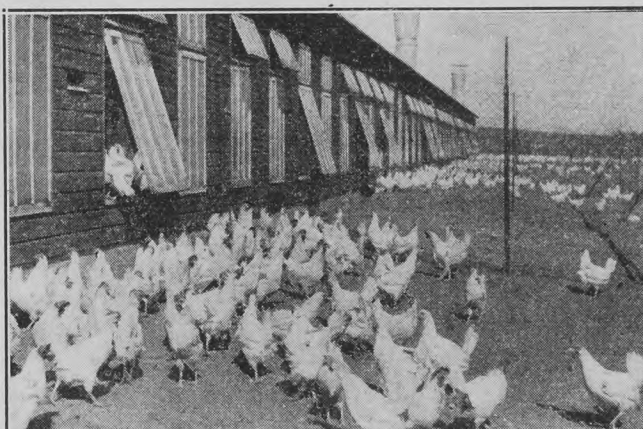
At first glance, it appears to be a one-way blessing to have such sturdy structures that repairs are at a minimum. Painting, loose boards, rotting sills, and warped joists, which often seems a constant problem with an old set of buildings are practically unknown. It would seem that this permanence had no drawbacks from our usual point of view, but it has from the standpoint of modernization.

Unfortunately for the overseas farmers, the modern trend of higher wages has made it imperative that their barns and out-buildings be improved. These buildings were designed without any emphasis on efficient use of manpower, which was plentiful and cheap. Now, with higher wages and necessary efficiency, many buildings should be remodelled. The complaint is that these buildings are too well built and thus too expensive to modernize. Often there are many cut-up little rooms in a barn, with no central feed alley, thus making difficulty in feeding, watering, cleaning and bedding. To remove many thick stone partitions is

The author, an Ontario farmer, takes a close look at farm buildings in a recent tour of Europe that takes him from Greece to Scandinavia. Old forms hobnob with the latest utility designs but everywhere farmers build for permanence

expensive. Because, when built, steel trusses were unknown, and heavy barn timbers, such as we have used, were too expensive, new roof support would have to be installed, as now the support of the roof depends on the partition walls, to a great extent. It would seem almost cheaper in many cases, to build new and disregard the old, rather than attempt alterations. There is, of course, so much rebuilding of war damage, that materials and men are very scarce and extremely expensive.

The large barns, which are common to us, have not been copied from Europe. Our prototype barn, with its large loft space, is not seen in the southern countries and seldom in the north. This, in a way, is accounted for by the fact that in the southern countries and much of England and Scotland, the winters are short and mild, and consequently such large winter feed supplies do not have to be put aside. Animals are able to graze a great deal of the year, which obviates the necessity for loft space. The scarcity of heavy timbers overseas has, no doubt, precluded the relatively large spans which we enjoy. It follows that each type of animal is more often quartered in its own building, rather than our tendency to accommodate horses, cattle and pigs in our large, general-purpose barns. (Please turn to page 60)



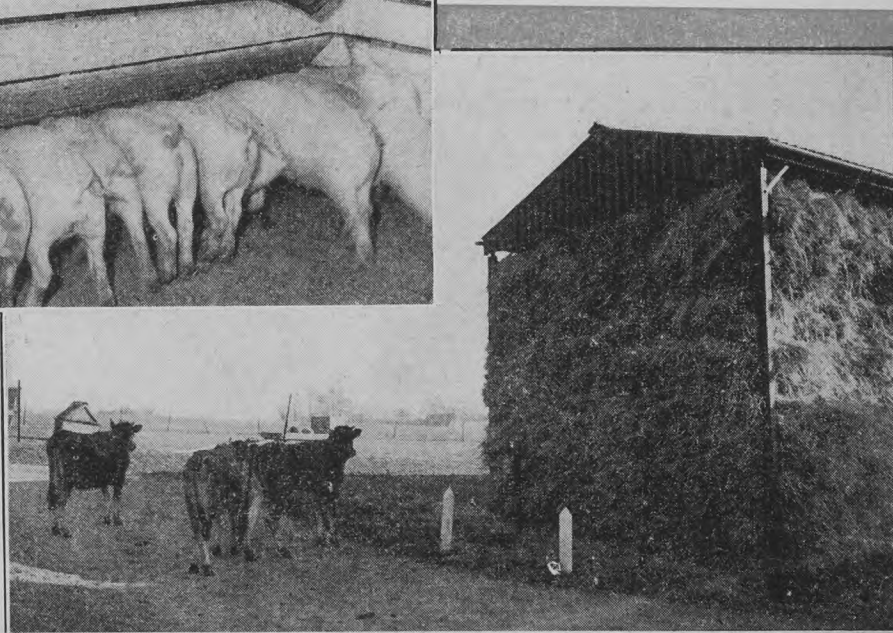
Left, above: The hens in this well-housed Danish flock average from 200 to 250 eggs each annually. Left, below: A typical Danish piggery where close control over feeding gives exact results at the abattoir.

Photos courtesy Danish Foreign Ministry, French Information Office, United Kingdom Information Office.



Left: Only a farm gate, but the builder displays the French genius for artistic form.

Right: An English farmyard showing a "Dutch" barn for protecting feed, and an electric fence.





CAM had only one guiding trip that fall. Mr. Corey Tate, wealthy lumberman from Bangor, showed up as usual on the first day of the deer season and he and Cam spent four days in the woods, stalking deer and hunting wild birds. It netted Cam \$60. At the end of that time an unseasonable cold spell set in, the wild birds decamped for the South, and even the deer removed to winter-yard in their secret places in the deep woods.

One early morning in mid-November Cam came into the kitchen with a pail of spring water clinking with ice. Bucky was just sousing his face and hands at the kitchen sink.

"Well, we got our work cut out for us today, son," Cam said.

Bucky's heart sank. More wood, he guessed. They had been cutting up winter wood for the past three days.

"Figger to set out our new trap line clear up the Jackpine 'fore night."

Bucky's face emerged from the towel, eyes glowing.

"It'll snow by afternoon," Cam announced. "Just the day for some real clever trap an' snare work. Snow'll come on an' cover all our sets by night. An' all them wild critters in there figgerin' the world's their own. We'll make an all-fired big catch, first night. So hurry on with your breakfast, son, 'less you want I should go alone—"

"Now Pa, you wouldn't!" Bucky cried. He sped to his place at the table. As he ate cakes and bacon he looked out the window. The pine tops were bending before a cold north wind. The grey sky was darkening to slate color.

"I already cut up the bait," Cam said. "We'll take along the rifle. Might be we can gun us that sneakin' varmint that was trailin' us last time."

"You can gun us some more meat while you're at it," Ma Calloway said. "We're fresh out again."

She was busy wrapping corn bread and bacon in paper to put in Cam's knapsack. Cam went outside again to chain up old Sounder, for he wanted no noise or fear of dogs to rouse the wild dwellers in the new secret valley.

The traps were already in their canvas sacks. Just before they started Cam stuffed several hundred feet of heavy leather thongs in his sack.

"It's a long way, so don't expect us back till full dark," he said, swinging the knapsack over one shoulder and the sack of traps over the other. They set out, Bucky weaving slightly under his load of more than 60 pounds of trap iron.

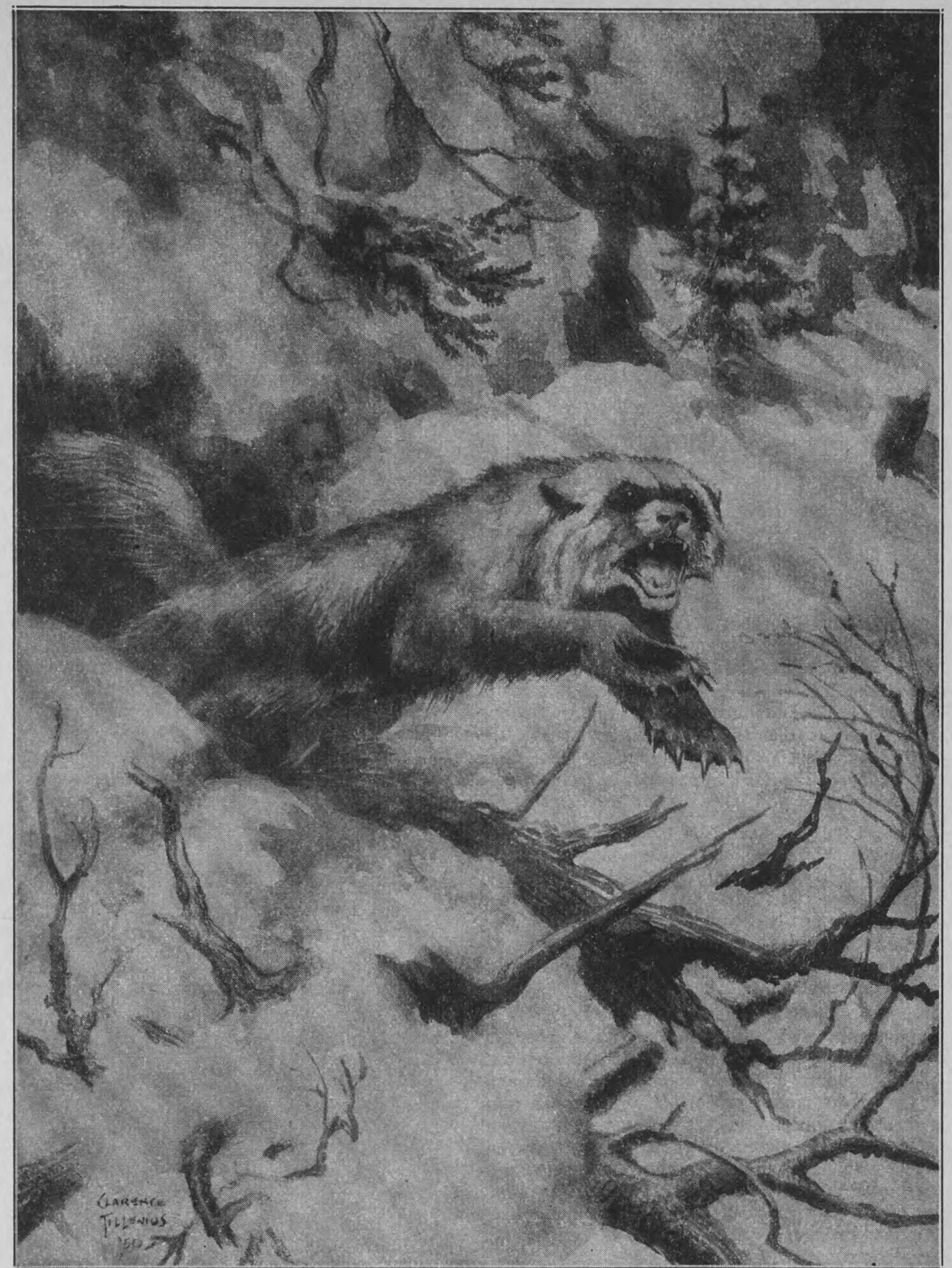
"Don't let Sounder loose till close on to dark," Cam called over his shoulder.

THEY wasted no time in talk today nor did they tarry once along the trail, though from time to time Bucky had to stop and lower his sack and get his breath. Both were dressed in thick brown linsey-woolsey and wore heavy felt shoes, the soles of which never slipped and were almost noiseless on the forest floor.

In a little more than an hour they reached the entrance to the valley and once in that dark, forbidding tangle a hush seemed laid upon them. Bucky felt, as on that first day, an overshadowing sense of oppression.

Cam set to work at once planting artful sets along the stream bed and up the larger ravines. At least half the traps he laid were blind sets, unbaited and buried shallowly in earth or leaves. His mink and otter sets were placed in the stream itself, traps covered with mud, the trap pans level with the surface of the water. Later these would be camouflaged with ice and snow till they looked like half-submerged stones. He used wire snares for ermine.

"Easiest way to catch them little dobbers is to lay out chunks of iron on the snow, smeared with grease. No weasel can keep from lickin' bacon grease. His tongue freezes to the iron as he licks



The wolverine lunged suddenly forward. Its might lay in its indomitability and a slow, resistless strength.

an' he dies a slow, tormented death. Many a one I've seen dyin' in torture thataway. It's a sorry, low-down trick for a man to play. I never come onto a bait like that but I take it up or chunk it in a stream. Another place I draw the line is strychnine," Cam added. "I just won't be a party to poisonin' in the woods."

Among the blowdowns and drift jams in the stream bed Cam devised crafty snares, log falls and spring traps of bent saplings held by thongs, which often proved more efficient than traps of steel. Bucky watched each process in the rapt silence of a neophyte learning from a master. In every instance Cam went where an animal would likely go. He seemed to think and plan like a wild thing itself. At one sheltered place between three trees he constructed a crude lean-to shelter of bark for the future storing of traps.

As they penetrated farther up the valley both

father and son felt again that they were not alone. At times Cam would pause in his work and stand motionless, listening. Bucky wished his father would talk, but Cam remained silent.

AS they rested from their work at midday, both suddenly became aware of someone near them, watching from behind. Leaning against a tree, as if he had sprung out of limbo, was a short, dark-clad man, empty-handed, with a swart face and bright eyes, which by their odd expression seemed empty of everything but distant thought.

"Hello, Nigosh," Cam's tone was both startled and relieved.

"Layin' traps, hey? Fur sign pooty good in here. Mm. Yeah," said Indian Peter Nigosh in a voice as quiet as the dusk beneath the trees. "But mebbe ye better let 'em be. . . Nex' season. You wait."

The Indian was already passing on.

Cam stood up. "Why?" he called after Nigosh. "How your old line round the lake?" Nigosh replied. "Bucky want line of his own now? . . . Mm. Yeah. Thought so. Bad dog in here now. You see."

He disappeared through the trees along the stream bank. It was Nigosh's way to come and go suddenly. They heard his voice once more, out of the shadows.

"Mebbe all right in here nex' season. You wait." Then he was gone, a shadow among shades,

Illustrated by Clarence Tillenius

troubling the quiet of the forest so little as hardly to have been there.

There was a long silence before Bucky spoke.

"What'd Nigosh mean, bad dog, Pa?"

"It's the Injun term for a trap robber, in a way o' speakin'," said Cam. A troubled shadow crossed his face.

"Think it was Nigosh watchin' us that first day?" Bucky asked.

Cam thought a moment. "No," he said finally. "But it's mortal queer."

"Maybe Nigosh wants this range for himself," Bucky said.

"No. That ain't his way. Always been a good friend to us, Nigosh, an' the Micmacs never hunted in here . . . Somethin' he knows. But we ain't to be drove from this valley, whether or no."

Bucky was taken aback by the sudden heat of the statement, but Cam spoke no more on the matter. They went on. At midday, as they ate a sketchy lunch, the first dry snow began slanting through the pines on the wings of the northwest wind. Cam seemed elated.

"Couldn't o' picked a better day," he said. "Time we're turnin' home, even our tracks'll be covered."

But Bucky couldn't rejoice, not under the shadow of these trees.

It was two hours later, as they were coming out of the valley, the snow already an inch deep, that misfortune fell. They were threading the rocks along the stream bed when Cam's foot went out from under him on the icy snow. He fell sprawling, and a boulder that had stood poised on another rock for untold years was dislodged by his weight, toppling to crush his leg.

Bucky, who was ahead, heard his father's stifled gasp of pain. He turned to see Cam crumpled on the ground, his two hands grasped in agony about his lower leg. For a space the boy stood rooted in his tracks. Then Cam's voice released him.

"**B**AD luck! The bone's broke!" His voice was a croak.

Bucky knelt in fright to raise his father, but Cam's hand held him back. A strange, waxen pallor had spread round his eyes and forehead as he fought against fainting. The stabbing anguish of the pain that shot through his limb had numbed the very roots of will. He propped himself with a hand on the ground, sat deathly still for a space, his breath rasping like a runner's. Then he spoke.

"It's bad, son. Go find two strong strips o' pine bark. An' bring a length o' thong."

Sobbing under his breath, Bucky darted away among the trees, stumbling, searching with half-seeing eyes for he hardly knew what. The forest, to which he and Cam had always been attuned, had suddenly turned against them, implacable, remorseless; it had struck Cam down, swift as a bolt of light.

When Bucky got back Cam sat in a daze of pain, his back to a tree. Sweat stood in beads on his forehead. He looked up.

"Tie that thong round my foot, son. E-easy does it . . . there. Now tie the other end round that saplin' there. Tie it tight."

In a minute Bucky had the knots secure.

"Got to pull against the thong now to set the bones in place," Cam said.

"Oh, Pa, shouldn't I go for help? Doc Waters—"

"There ain't time," Cam said. "Got to do it ourselves before the swellin' starts, or I'll be crippled for life."

Cam began to pull back slowly. It took a gigantic effort of will, and in the agony of it his breath came panting from his lips. He groaned and Bucky, kneeling close, prayed, his face turned up to the pine boughs. Finally, with a nauseating click, the bones snapped into place. Then for a merciful moment Cam's head sank on his chest; consciousness waned.

When he came to his thin face was lined with pain, his mouth grim and wry: "The valley's got in the first lick," he said.

A dark shaft entered Bucky's chest at the words, but he closed a gate against it, threw it off.

"Does it pain, Pa?"

"Like a bear'd sunk his teeth into the bone an' hung on." Cam propped his back against the tree again. "We set it, good as we can. 'Twon't swell so much now. Now lay them bark strips round the leg, son, hollow side in, an' bind a thong round 'em."

BUCKY jumped up from where he knelt.

"Break away the edges," Cam said. "They got to fit close together. Got to act as a cast till the doc can get to me. Easy now. Pull the thong tighter as I tell you, a leetle at a time."

Bucky obeyed with trembling hands. Cam winced and groaned aloud, but at last the crude cast was tight in place.

PART II

Swiftwater

by PAUL ANNIXTER

Cam and Bucky set out to cover the trap lines in the silent woods. The boy gets a chance to try his mettle when mishap and adventure come their way. Things move forward for the Calloway family

"Next thing's to get home," Cam said. "You better go back now and fetch a sled. Our wood sled'll do, I reckon. But maybe you'd best stop an' bring Jeth Mellott back with you. It'll be hard pullin' me over the humps an' hollows."

"I'll get him."

"Take the hand axe first an' cut a few pine boughs an' pile 'em over me. It'll keep off the snow. We're in for real weather."

"Want I should start you a fire?" Bucky said when this was done.

"No need. Get goin', son, an' hurry."

Homeward through the dim aisles between the trees Bucky sped long-legged, at a sort of Indian lope. The snow was thicker now, setting in for an all-night storm. But it wasn't the snow that dimmed his vision. Tears of misery and grief ran down his cheeks and his tortured mind roved afar, coping with a score of dire possibilities. Cam lying back there suffering, perhaps crippled, and the hopes of the family shattered again. He sped faster, trying to shed the picture.

The dark trees passed him by in sombre procession. His legs pumped up and down endlessly, but his progress seemed snail-slow. But he did not slacken his pace even after his heart fell to pounding.

His whole being cried out, framing a plea to the wilderness. It was like a prayer, but all that came forth was a single sobbing word.

"Please—" he breathed to the surrounding trees and the growing night.

Dusk was coming on when he reached the home clearing. The sled on which they hauled their winter wood was by the shed. He took up the rope, and jerked the frozen runners loose. He did not stop to tell Ma, but took the trail that led to the Mellott cabin.

It was full dark and he was nearly spent when he came to the house on the Shoulder. There was yellow lamplight within, and a plume of smoke curled from the chimney. Bucky thumped at the

door. He must have been leaning against the jamb in his exhaustion, for he almost fell inside when Mrs. Mellott opened.

"Why it's Bucky Calloway! Whatever's wrong?" she cried. "Jeth, come up here."

Big Jeth Mellott climbed up through a trap door from the cellar. Bridie, in a blue apron, hurried in from the kitchen.

"Well, well, Bucky, come in, come in! Don't stand there in the cold," Jeth called out in his foghorn voice.

Bucky came only a step or two inside. "It's Pa," he gasped. "He's lyin' way up in the Jackpine with a broke leg—"

The Mellotts clustered about him shutting off his words, all but old Mrs. Bates, Bridie's grandma,

who sat on by the fire stonily silent. New panic surged up in Bucky at the incredulity on all their faces in this safe, warm, lighted room.

"How'd he come by it?" Jeth had to know.

"A big boulder—it tipped over an' caught him as we come down the creek. Please help me get him out, Jeth! I got our sled outside."

Bridie's father roused to action. "I'll go hitch up Agatha."

"The trees are too thick in there," Bucky said. "We couldn't never get to him

with a rig. We'd best take the hand sled."

"Guess you're right. But somebody's got to go fetch Doc Waters."

"I'll drive in and get him while you're bringing Cam out," Bridie said. She hurried to get her coat.

Jeth was already pulling on his mackinaw.

"All this food," Mrs. Mellott said. "We were just about to sit. Can't somebody eat a bite?"

"I can and will," said Grammer Bates, who was already seated at the table. "Good food never went to waste in my time, come high water or Indians."

"It'll wait for us," Jeth said. "We got to hurry. Cam might freeze to death, night like this. Now where's that lantern?"

Bucky leaped to the door at Bridie's side. "I'll help hitch," he said, grateful for any action. A measure of relief was already flooding over him. Help was on the way.

A vast sense of gratitude to the Mellotts came over him. Bridie—she wasn't all fool in spite of her ruffles and silliness. Still near as good as a man when she wanted. Her hands were quicker and surer than his in the dimness of the barn, buckling Agatha's harness. Take her for a grown woman, way she turned to him as Jeth came out with the lantern: "No use to fret so, Bucky. We're doing all that can be done."

Her words and the look she gave him stilled the turmoil in his chest. He thought about that again and again as he and Jeth plodded northward in the flickering circle of the lantern light.

FOR three days after Cam's accident, it snowed intermittently. The slate-black clouds of winter had banked up in the north and west.

They were moveless, changeless, remote, and mackerled like banks of corrugated metal, and the only sun the family saw was a yellowish filter at midday that came in the cabin window like a thin sifting of sulphur dust.

It had been a grim and anxious time in the Calloway cabin, and Bucky could hardly put his mind to anything. Most of the time Cam had lain half asleep, sometimes flushed with fever, sometimes with an ashen pallor, for he had come close to pneumonia. There was little talk in the cabin; even Ma was silent, a bad sign.

It was dusk and Bucky was just bringing in the night's wood, enough short logs to burn till morning and a pile of niggerheads for beside the fireplace that would last (Please turn to page 62)



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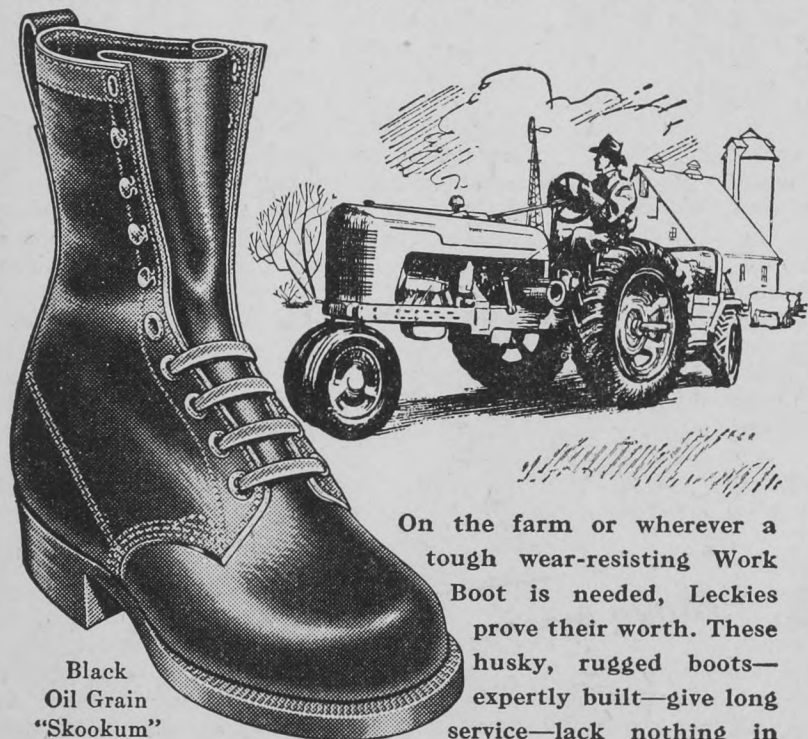
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W-486

Pacific Coast Chat

Fishermen, depending on salmon cycle, get an unpleasant surprise

by CHAS. L. SHAW

THIS was to be the year of the big bonanza in the run of sockeye salmon to the Fraser River. Instead, it was a "bust," and fishermen and canning companies are tallying up their losses, actual and theoretical, in hundreds of thousands of dollars, if not millions.

No one has yet been able to account for the unexpected failure of the salmon run to the Fraser. According to all the calculations of the international commission which has directed the long-term conservation program on this river and built the fishways at Hell's Gate to facilitate the passage of spawning fish, there was to be a gigantic rush of salmon from the open Pacific into the river. For this was the season—one every four years—when the sockeye headed for the Adams tributary, most prolific of all the Fraser streams. Four years ago there was a big catch and, according to the records of the commission, a substantial escapement to the spawning beds to ensure a heavy run in 1950. Eight years ago the run was so great and the catch so heavy that office workers were drafted for service in the crowded canneries.

Fisheries are still far from an exact science, but the experts had figured that all the indications were promising. Fishboat owners invested in new gear and equipment, sent their vessels to the mouth of the Fraser—and waited. As this is written, in the second week of September, they are still waiting, and a sudden surge of sockeye to the Fraser at this late date would indeed be a miracle. The only favorable fact is that salmon have been abundant in other areas and the total pack will be normal, but it is rather melancholy to contemplate this unexpected upset in all the "dope." One cannot help wondering whether the mighty Fraser River salmon fishery, after such an encouraging showing in recent years, is really coming back, after all.

THE west coast has recently been invaded by some of Canada's top-flight industrialists and business men, delegates to the annual meeting of the Canadian Chamber of Commerce whose business sessions were actually held at Banff. Most of the talk of these leaders has been of the growing integration of the economies of Canada and the United States and the possibility of a higher valuation for the Canadian dollar.

"During the past year," the Chamber stated officially, "Canadian trade and business have moved perceptibly closer to our neighbor to the south. This is a move which is likely to continue under the necessity of joint defence and industrial preparedness."

One effect of a higher Canadian dollar, it was said, would be lower beef prices because American buyers would not have the advantage of the extra value of their money when buying cattle in Canada.

But this has not lessened the optimism among British Columbia cattle interests any more than it has affected the booming lumber and pulp and paper industries, both of which have been selling heavily in the United

States market and receiving a premium on sales because of the difference in currency values.

IMPORTANT in a historic as well as economic sense was the purchase a few days ago of the famous Douglas Lake cattle ranch in the Nicola Valley by Colonel Victor Spencer of Vancouver and associates, including W. P. Studdart, British Columbia-born Montana cattleman.

Colonel Spencer, who with his brother Chris retired from the mercantile field recently when their highly successful and old-established department store enterprise was sold to T. Eaton Co., has always been interested in large-scale ranching and before acquiring the Douglas Lake property owned extensive grazing land and farms at Pavilion and Lytton in the Lillooet country.

The Douglas Lake ranch goes back to the early days of British Columbia and the late Joseph B. Greaves, a land holder in a small way near Kamloops, with a vision. At that time Andy Onderdonk was pushing the Canadian Pacific's rails through to the coast and his work crews consisted of thousands of hungry construction laborers with an appetite for beef. Greaves visualized the possibilities of a cattle ranch close to the scene of construction and managed to interest some Victoria financiers in a plan to buy up range land and stock it with cattle.

The Douglas Lake Cattle Co. was almost instantaneously successful, and its operations grew with the years. Thousands of Herefords eventually roamed the hills comprising the big ranch, which was to become one of the biggest and best in the British Empire. The enterprise expanded to encompass the holdings of many pioneer land holders such as the Guichons who moved to new locations and still prosper in the Nicola country. Greaves died long ago, but the ranch has remained in business-like resourceful hands and when Col. Spencer took it over it embraced 150,000 acres owned outright by the company with an additional 350,000 acres leased from the government—a Canadian cattle empire populated with beef stock.

IN the poultry world, British Columbia breeders were disturbed last month by the announcement of an embargo on British Columbia poultry in Alberta as a result of the outbreak of Newcastle disease. Coast breeders are somewhat skeptical as to the fairness or legality of this action and hope that it will not continue long in effect. If Alberta closes its doors to British Columbia poultry indefinitely the loss would be a serious one because the foothill province represents about 15 per cent of the B.C. market for export baby chicks, hatching eggs and breeding stock.

One estimate of the loss to the British Columbia poultry industry already as a result of the disease is as high as \$5,000,000 and it would not take long to add another \$1,000,000 to this if the embargo persists. The viewpoint of British Columbia poultry

men is that Alberta, if it planned action at all, should have stipulated certain areas under quarantine rather than make the ban effective in sections with a clear bill of health. About 600,000 baby chicks are hatched annually in British Columbia, and about half of them go to the prairies. Many hatching eggs are also produced there, as the prairies do not produce enough hatching eggs for their own needs.

Canada's short-lived railroad strike caused some dislocation in British Columbia's fruit and vegetable canning operations, but the situation was relieved to some extent by the existence of the new Hope-Princeton Highway which made it possible for growers and packing plants to shuttle supplies back and forth between the coast and the Okanagan by truck. Had the railroad tie-up continued long, expansion of this highway freighting service might have had lasting repercussions in the transportation situation. It did last long enough, however, to give everyone concerned a glimpse of the possibilities of truck competition in this sphere of operation.

Generally speaking, it has been an active year for the Fraser Valley canneries, and the long, warm summer with just enough rain at the right time led to big and high-quality crops. The season will go down as a tough one for the fruit growers, however, as a result of the disastrous effects of the unprecedentedly severe winter of 1949-50.

Peace Tower

Continued from page 4

strike. How many minutes did that take?

Then, once there, everybody spoke their piece about Korea. The government kept quiet, because it believed that in a short time, the Korea incident would begin to peter out. It was known in Chicago by Labor Day that the beginning of the end was in sight. Ottawa knew that too. But the opposition groups professed not to know. They just wanted to pan the government.

Thus, the session which convened to settle a railway strike became a Korean gab-fest. The government had its revenge when it made the legislators work from 11 in the morning till 11 at night. St. Laurent imposed sweat-shop hours.

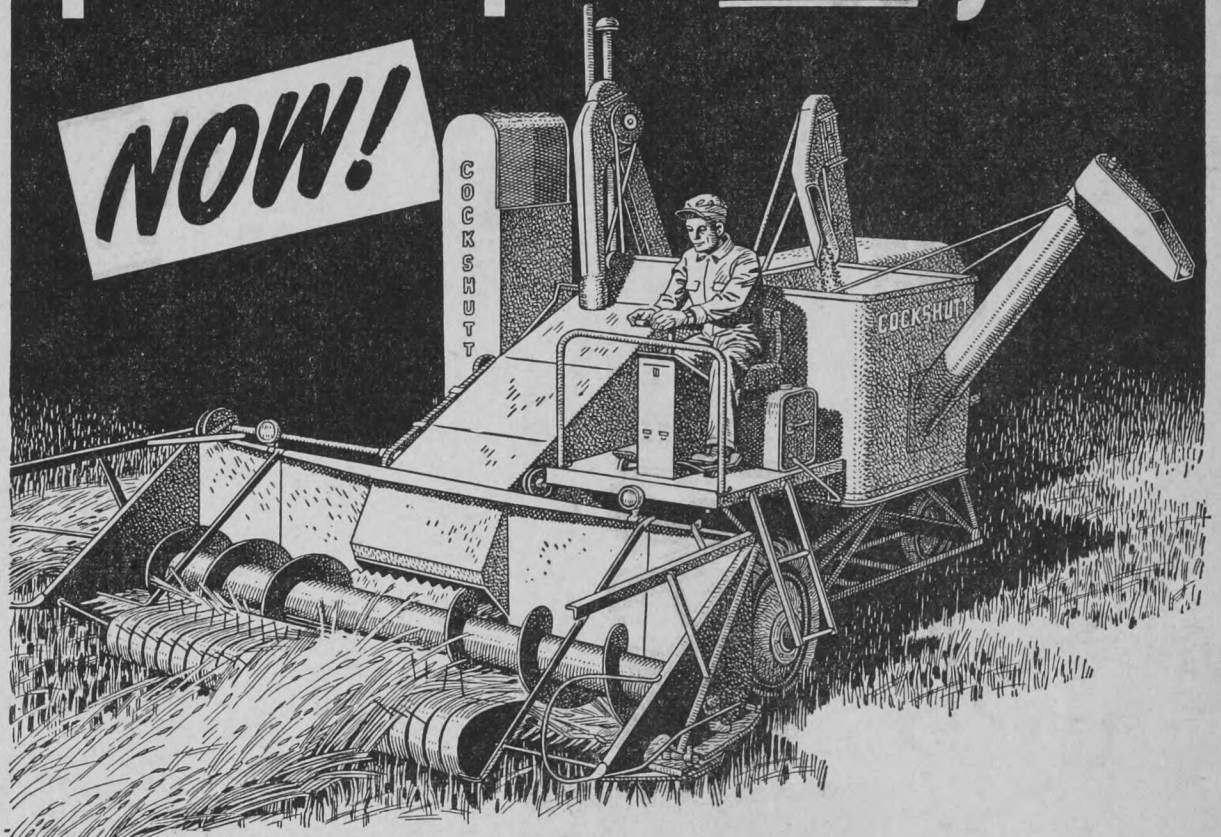
BUT I have noticed how, in so many of these so-called emergency sessions, the government really sabotages the whole business. By refusing to make statements, by refusing to bring in new laws, by refusing to do anything except what it simply has to do, it lets the opposition talk its head off. Then comes the vote. The government always wins.

The boys start sneaking home, first in ones and twos, then by the dozen, and finally, a faithful corporal's guard closes up the place.

But the public learns nothing, and the opposition groups, of course, put the ear trumpet to their deaf ear. Nobody has learned anything from this special emergency session. They will keep on having them. And most of them will be a waste of the government's time; and often of the taxpayer's money.

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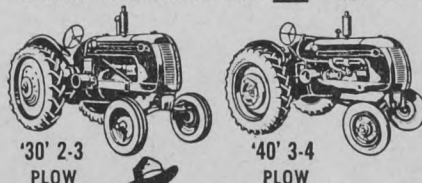
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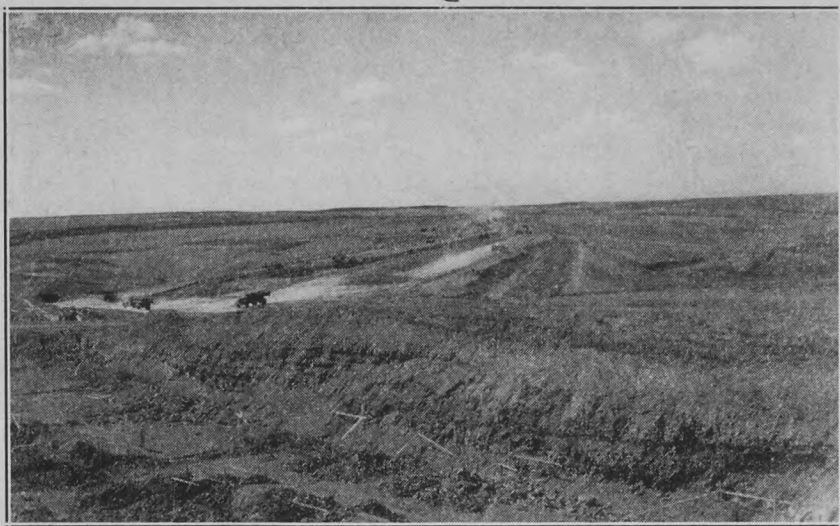
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News of Agriculture



Huge St. Mary dam, south of Lethbridge, looking across the uncompleted spillway and along the top of the great earth-fill structure which is in process of completion.

Completion of St. Mary Dam

WATER will be turned into the huge St. Mary dam—40 miles southwest of Lethbridge, the largest single construction unit in the St. Mary-Milk River irrigation development—some time before Christmas. This project is designed to use Canada's share of four international streams, the St. Mary, the Milk, the Belly and the Waterton Rivers, with their tributaries. It will, when used to capacity, supply a grand total of 519,000 acres of land with irrigation water, which will be 399,000 acres, in addition to the 120,000 acres now under irrigation from the St. Mary River. The land to be irrigated will stretch from southwest of Magrath as far east and north as Medicine Hat, and some portion of it will extend southeast to a point somewhat east of Taber and south nearly to the Milk River.

The big dam itself is of rolled earth-fill construction, and is 195 feet in height, and 2,536 feet in width, requiring more than 4,500,000 yards of material for completion. This would be enough to construct a first-class highway 140 miles long. It will be the largest of its kind in Canada.

The dam will create a reservoir, which will contain 320,000 acre-feet of water, of which 285,000 acre-feet will be usable. The reservoir thus created will be 17 miles long and six miles wide. Water for irrigation will be released from the reservoir through a 2,500-foot tunnel into a canal leading east to the Pothole Coulee Reservoir. The tunnel will carry 3,200 second-feet of water.

The Government of Canada will meet the construction costs of the project from Waterton River to the Milk River Ridge Reservoir. From there, the Government of Alberta will meet the cost of the entire distributive system from the Ridge Reservoir to the various irrigation districts.

This entire development has been under way since 1899, when the first irrigation was undertaken in the area. Shortage of water from existing irrigation facilities led to the planning of the huge St. Mary-Milk River project, the water supply end of which is now so well under way.

Sask. Honey Board

THE provisional Saskatchewan Honey Board took office on September 25, and will administer the Saskatchewan Honey Marketing plan,

which was approved by approximately 73 per cent of the vote polled earlier in the month by the honey producers of the province. Members of the Board, all commercial honey producers, are: P. C. Colquhoun (chairman), Maple Creek; K. S. Baines, Tisdale; F. N. Barclay, Carrot River; R. Hamilton, Aylsham; and F. Pearce, Leacross. They were named by the honey producers, and, by approval of the producers voting for the establishment of the honey marketing plan, will administer it for the first year, after which (in July, 1951), a three-person Honey Board will be elected by a vote of all registered producers.

Surplus U.S. Commodities

WHEN the U.S. Commodity Credit Corporation issued its September price lists for surplus commodities, it offered 100 million bushels of wheat, 31 millions of barley, 11 millions of oats, 12 millions of flaxseed, 100 millions of corn, and 2 billion pounds of grain sorghums.

Wheat was offered for export at the market price on date of sale. For domestic use wheat would be sold at the applicable 1950 loan rate plus 21 cents per bushel, or at the market price, whichever was higher. On that basis, the minimum price for No. 1 Hard Winter at Kansas City was \$2.47 per bushel, and for No. 1 Dark Northern Spring, \$2.48 per bushel at Minneapolis, both prices being substantially above the current market. The minimum domestic flaxseed price was brought down to \$3.50 per bushel in store Minneapolis, to make it more comparable with the free market. Sales will be made at the market, or the minimum price, whichever is higher, until January 31, 1951. CCC prices for corn, barley, oats and grain sorghums are established on a similar basis to that of wheat.

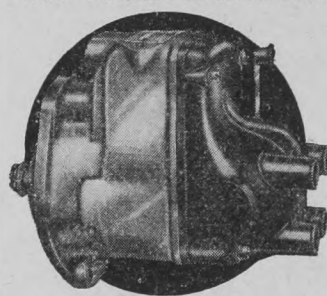
U.K. Gift Stock Sale

WHEN the Red River Flood in Manitoba was at its height in June of this year, The British Government, The Royal Agricultural Society of England, The Highland and Agricultural Society of Scotland, together with noted breeders of cattle, sheep and swine in the United Kingdom, offered to contribute high quality breeding stock, to be used in aid of livestock producers of the Red River Valley. Arrangements were later completed, through the co-operation of

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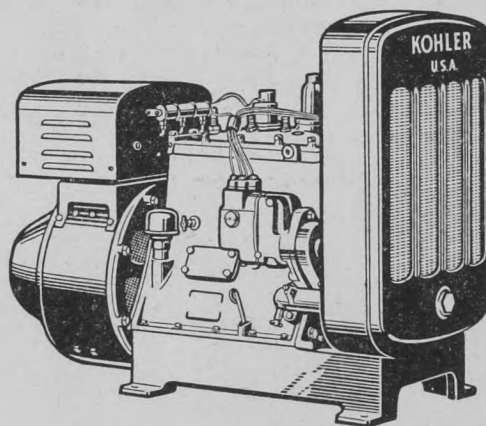


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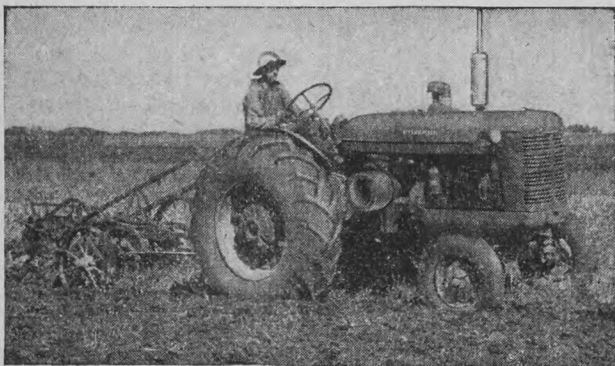
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Wm. Coventry, British Trade Commissioner, Winnipeg, The Manitoba Department of Agriculture and the Manitoba Cattle Breeders' Association, to accept and dispose of this livestock for the purpose intended.

In consequence of this arrangement, an auction sale of the livestock donated will be held in the Winter Fair Arena, Brandon, at 1:00 p.m., on Saturday, October 21. It is expected that the animals will reach Brandon in late September or early October. They will represent the Shorthorn, Aberdeen-Angus and Hereford beef breeds, the Jersey and Ayrshire dairy breeds, Red Poll cattle, Suffolk sheep and Large White (Yorkshire) swine. They will also represent some of the most outstanding herds and flocks of the United Kingdom.

Biggest Wheat Field

WHAT is believed to be the largest field of wheat in western Canada was to be found this year on the Blood Indian Reserve, about 16 miles southwest of Lethbridge. It consisted of 3,800 acres in one solid block, unbroken by roads of any kind, except a lane running from one side, into the approximate center of the block, where the operative buildings and machinery are located. It is part of a 5,000-acre area, leased by N. B. Farstad and associates.

The Blood Indian Reserve consists of more than 1,000 square miles of land. During the war a portion of it was used as a bombing-practice range. About two years ago it was decided to lease some portions of the reserve for grain production, and a group of about 34 farmers obtained 14 leases through the Department of Indian Affairs. The leases are very carefully drawn up so as to provide for good cultural methods and for the cessation of the lease if satisfactory practices are not applied to the land. In all, about 38,000 acres have been leased on the Reserve, and the farmers have formed the Blood Farmers' Association. This year it is estimated that about 30,000 acres are under cultivation, and an average yield of around 18 bushels per acre was expected.

The area is more or less isolated and requires a long haul across the St. Mary River. It was necessary to purchase a right-of-way through private farm land to the highway and to build a bridge across the river to cut down the hauling distance.

N. B. Farstad and associates had about 300 acres in crop in 1949. They expected an average of 20 bushels per acre at the time of a visit by a representative of The Country Guide to the large tract, on August 3. A little hail was experienced earlier in the season and the danger from late frosts, which have damaged so much crop since early August, was yet to be met.

U.S. Wheat Support Price

LATE in August, Secretary Brannan of the U.S. Department of Agriculture announced a national average wheat price support for the 1951 crop, of no less than \$1.99 per bushel for wheat grading No. 3 or better, or grading No. 3 except for weight, or mixtures of Durum or Red Durum.

By law, this announcement must be made before the planting season, which for winter wheat would begin in September. The Agricultural Act of 1949 requires price support for the 1951 crop at from 80 to 90 per cent

of parity. The announcement of the secretary put the price support at 90 per cent to assure an abundant supply of wheat, based on the acreage allotment announced July 14, totalling 72.8 million acres and calculated, with average yield, to produce 1,150 million bushels from the 1951 crop.

The announced price support level is based on the latest parity price information available. If, by the beginning of the 1951-52 marketing year, parity is higher than at present, the support price will be increased to reflect 90 per cent of parity at that time, but in no event will be reduced below \$1.99 as a national average.

Manitoba's Wild Rice

UNTIL now Manitoba's crop of wild rice has been sold without processing, its principal market being the United States and its quality superior to other North American wild rice. This fall a processing plant will be in operation, which will take care of about 200,000 pounds per season and in off-seasons can be used for cleaning alfalfa seed. Located at Lac du Bonnet, the cost of the plant and equipment will be about \$25,000, and it will give employment to eight or 10 persons. What is more important, perhaps, is that, according to B. E. Olson, Superintendent, Indian Agency, Selkirk, this plant will provide additional income for nearly 300 Indian families, who harvest the crop.

New Zealand Outsold Canada

FOR the first six months of 1950, New Zealand displaced Canada as the principal source of U.K. foodstuffs, notwithstanding that Canada's dollar volume of sales to Britain was approximately the same as a year ago for the same period. For the first half of this year Britain imported from all countries £425,630,000 worth of foodstuffs, which was £79,000,000 more than in 1948. At the same time the actual volume of imports was 4.5 per cent down from 1948. In that year, Canada sold the United Kingdom £67,200,000 of foodstuffs; and New Zealand sold £42,500,000 worth. This year, for the first six months, New Zealand sold foodstuffs to Britain to the value of £66,200,000; and Canada sold £54,500,000 worth.

Denmark also rose this year from fifth place to third place in dollar value of exports to Britain, and is now followed by Australia and Argentina, the United States, the Netherlands, Russia and France.



[Guide photo.]
L. A. Jacobson and C. W. Farstad (right), Lethbridge, standing in the largest wheat field in western Canada.

Get It at a Glance

Brief items from here and there concerning agriculture

EFFECTIVE August 27, Britain reduced the extraction rate for flour produced in British mills from 85 to 80 per cent. British millers have been seeking a return to lower extraction rates for a long time, and also the separate distribution of Canadian, U.S. and Australian flours to baker customers, instead of a mixed or national flour. The peak of extraction was 90 per cent during the war years, and the normal prewar rate, 70 per cent. It is not expected that the old 70 per cent extraction rate will be possible for a long time; nor will British millers be allowed to sell separate flours.

A DETROIT baker recently pleaded guilty before a judge to having given his customers, as a precautionary measure, an 18-ounce loaf for a pound loaf, for several years. Released without sentence, he was instructed not to give the people more than 17 ounces of bread in any one pound loaf. He told the court that he had once been charged with selling a one pound loaf weighing only 15 ounces and desired to avoid a second similar charge.

THIRTY years after the first demonstrations of conservation, crop rotation and the use of fertilizers in Southern Rhodesia, crop yields have increased by 10 times.

AMONG 336 head of Holsteins exhibited at the C.N.E. this year were two animals from the farm of J. M. Fraser, Streetsville, Ont., which carried off between them, both grand championships and the progeny-of-dam class. Oldtimers at the show could not recall any instance where a brother and sister had combined to win these honors, or where a breeder in a single year had carried off all three honors at a show as large as the C.N.E.

TO the end of March, Australia had sold £225.2 million worth of wool, or £36 million more than for the entire 1948-49 year.

IT has been calculated that a cow yielding 18,000 pounds of milk per year will have produced proteins sufficient to produce three 1,250-pound steers, enough fat for nearly two such steers, mineral matter for three, in addition to 420 pounds of milk sugar, which, pound for pound, is as nutritious as cane sugar.

HOG marketings in Canada to the end of August were 21.5 per cent higher than during the same period in 1949. Only 26.7 per cent of the total hogs marketed originated in western Canada, which compares with nearly 65 per cent during the peak of war production. Though it is expected that Canada will complete her 60-million-pound bacon contract with the U.K. during the fourth quarter of the year, only 15.5 million pounds had been purchased for the U.K. bacon agreement up to the end of August. In 1949, however, 80 million pounds were purchased for the U.K. contract during the last four months of the year. Canadian domestic consumption in 1950 to the end of August was 20.5 per cent more than for the same period in 1949.

THE Royal Agricultural Winter Fair, which opens in Toronto November 14 and closes November 22, covers 26 acres, and provides inside accommodation in the Coliseum for 1,200 horses, 2,200 cattle, 1,200 sheep, 1,000 swine and 8,000 poultry, in addition to other exhibits.

A PRINCE ALBERT district farmer, Henry Hackl, believes he has a record yield this year of oats—at least in northern Saskatchewan—from a field which yielded 116.6 bushels per acre. The variety was registered Ajax and the yield was 2,800 bushels from a 24-acre patch.

THE Brannan plan of assistance to U.S. agriculture draws more support from the south than from the north. A poll of 6,894 Ohio farmers by the Ohio Farm Bureau Federation reported only 14 per cent in favor of the Brannan plan, while 39 per cent wanted no price supports. Twenty-five per cent wanted price supports at 100 per cent of parity or more. Sixty-four per cent wanted flexible price supports at from 75 to 90 per cent of parity, while 28 per cent believed farm surpluses should be allowed to take care of themselves. Another poll in three south Atlantic states showed 47.6 per cent for the Brannan plan, 51.4 against it.

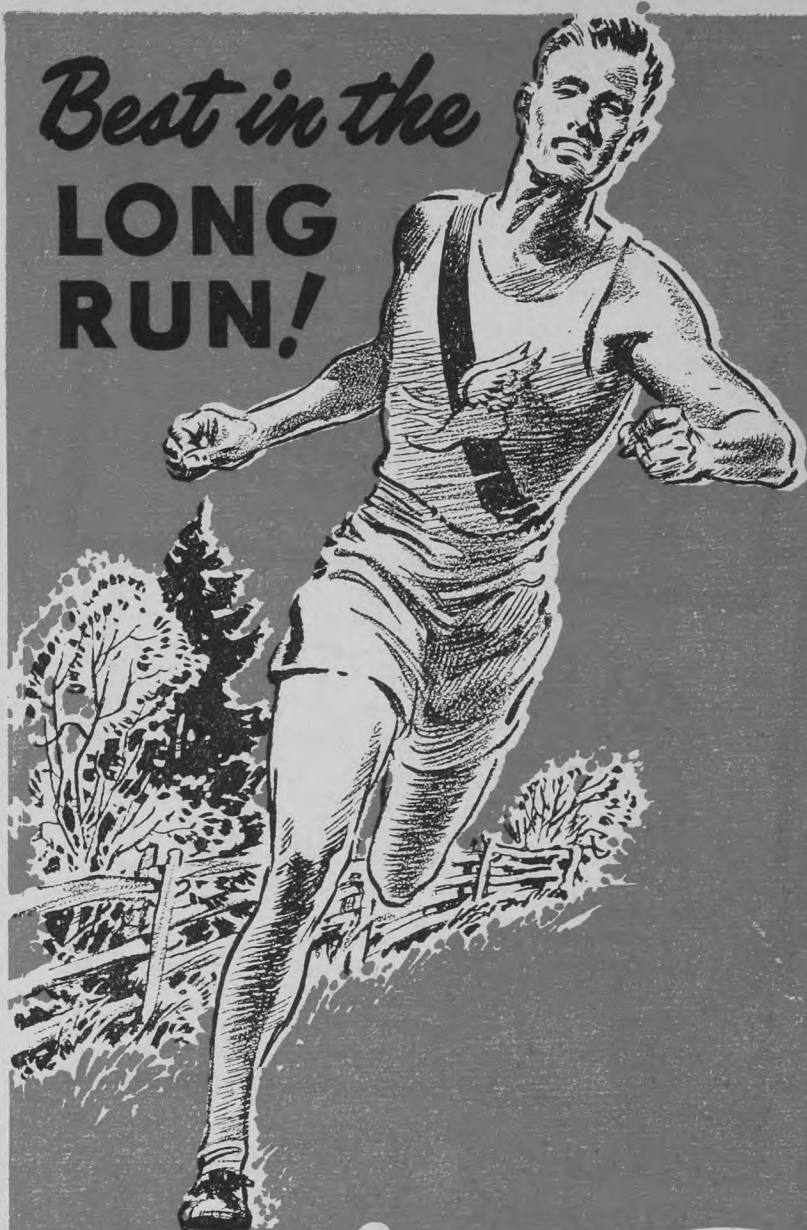
IT has been estimated that the total production of wheat in Europe this year will constitute a record for the postwar years. France is expected to produce 288 million bushels, Italy 272 million bushels, and Portugal about 20 million.

CO-OP. Vegetable Oil Ltd. at Altona, Man., is said to be the only sunflower oil extracting plant on this continent. Recently the Co-op. introduced a new product "Safflo," a salad oil. Since its beginning in 1946, the Co-op. has produced more than 30 million pounds of sunflower seed oil, the same quantity of sunflower seed meal, and two million units of a fuel product called Pres-to-logs.

OF the 72,784,810 acres allotted to wheat production in the United States in 1951, based primarily on the wheat acreage seeded in each state during the past 10 years, Kansas leads all other states with 14,077,057 acres. Next in order among the leading states are Oklahoma, 6,347,358 acres; Texas, 6,263,158 acres; Montana, 4,623,633 acres; Nebraska, 4,096,359 acres; South Dakota, 3,709,196 acres, and Colorado, 2,855,759 acres. Five eastern states, in addition to Florida, have no acreage allotment for wheat: Connecticut, Massachusetts, New Hampshire, Vermont and Rhode Island.

AS at June 30, 1950, the U.S. Commodity Credit Corporation owned or held under loans to, and purchase agreements with farmers, nearly 750,000,000 bushels of corn, and more than 361,000,000 bushels of wheat. At the same date \$3,538,125,000 was invested in C.C.C. price-support-program loans and inventories. During the year, the corporation had sustained a net realized loss of \$249,230,000. For the previous year this loss was \$254,000,000.

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GREYHOUND

LIVESTOCK



Reserves of roughage make for cheaper feeding. Concentrates will balance poor roughage and in emergency, may be easier to obtain.

Concentrates for Emergencies

THE Experimental Station at Swift Current reminds us that concentrates, such as grain, oil cake and mill feeds are valuable for winter maintenance of cattle and sheep. Livestock cannot do well for any length of time on concentrates alone, but we usually associate these feeds with the business of high milk production, or rapid fattening of market stock.

Occasions do arise, however, when the cheaper roughages must be conserved and more of the higher cost concentrates used. Animals which are thin and weak cannot utilize roughages and survive, say the Swift Current authorities. Concentrates are needed to bring them through. In times of emergency, when supplies of fodder are limited, it is easier to transport concentrates over bad roads and for long distances than it is to haul roughages. Under such conditions, concentrates can be used to conserve supplies of hay and fodder. The number of pounds of hay that a pound of concentrates will replace will vary with the kind of concentrate and the quality of the hay, but some men operate on the principle that one pound will replace from two to four pounds of hay. Under emergency conditions and bearing this relative feed value in mind, a little grain or oil cake in the daily ration may be just what is needed to bring the stock through the winter in good condition. This is fairly well illustrated by an experiment conducted at the Range Experiment Station at Manyberries, Alta., where it was found that wheat straw supplemented with two pounds per head daily of oil cake would winter range calves economically and well.

There were four lots of calves in the experiment, each one fed oil cake at the rate of two pounds per head daily. Lot one was fed Rescue wheat straw; lot two, ordinary wheat straw; lot three, oat hay; and lot four was on winter range, supplemented by oat hay only when grazing was impossible. At the beginning of the test, late in December, these lots averaged from 366 to 388 pounds each in weight. During the 91-day period to March 27, those fed Rescue wheat straw and oil cake gained an average of 19.5 pounds. They would eat only 5.7 pounds of Rescue wheat straw per day. Lot two gained 66.9 pounds, and ate an average of 7.2 pounds of ordinary wheat straw. Lot three gained 89.6 pounds, but ate eight pounds per head per day of oat hay. While on

the winter range, lot four were fed 3.8 pounds of oat straw on the average during the period, and gained only 22 pounds.

Valuing the oil cake at \$70 per ton, the straw at \$6.80 per ton, oat hay at \$20 per ton and the grass at 50 cents per head, the total cost of feed per head for lot one was \$8.13. Those fed ordinary wheat straw cost \$8.60 per head for feed. Lot three on oat hay cost \$13.65 per head, and those on winter range, \$10.33 per head.

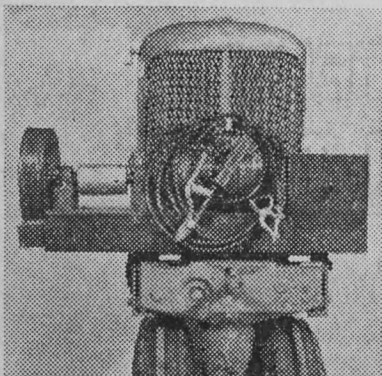
The Rescue wheat straw was higher in fibre and mineral content, but lower in total digestible nutrients than the ordinary wheat straw, and it apparently was not as palatable as the hollow-stemmed straw. Manyberries report that a fifth group of calves, wintered on oat hay alone for 91 days, required an average of 9.4 pounds of hay per day to keep them alive through a severe winter, at a feed cost of \$8.55 per head. On this they gained 59.3 pounds, but one animal of the group died from pneumonia before the daily ration was increased from eight to 10 pounds per day. The conclusion reached was that wheat straw, in addition to two pounds per day oil cake, compares favorably with oat hay alone for wintering range calves.

Other experiments at Manyberries have shown that 1,000 pounds of any good quality hay will maintain the weight of a calf for a period of 110 days, from early December until mid-March. Preferred hays are alfalfa, oats, bluejoint, crested wheat, or corn fodder, or mixtures of these. Calves wintered on these feeds were strong and vigorous in the spring.

Feeds not so satisfactory were sweet clover, hay from spring and fall rye, wheat and oat straw, slough hay and Russian thistle. Calves fed on these feeds tended to develop more digestive trouble and many were inclined to be paunchy in the spring.

Millions for Feed

THE Saskatchewan Department of Agriculture estimates that owners of livestock in drought areas paid out \$2,000,000 for fodder and feed grain in 1949; \$1,000,000 in 1948, and \$1,500,000 in 1947. This makes \$4,500,000 paid out in cash by farmers who, in many cases, could ill-afford it, for fodder and feed grain, which might have been provided as a reserve from previous years, if forehandedness had been a little more in evidence.



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A year's supply of feed grain, and seed grain on hand, together with two years' supply of hay or fodder can be a mighty comforting thing when current production is low and cash none too plentiful.

The Saskatchewan Department urges six tons of hay per head of cattle every fall, equal to two years' reserve plus the current year; and in addition, two years' requirement of grain binned every fall for seed and feed. Two years' reserve of fodder, in addition to tame hay, is possible on most farms by making use of everything available, including Russian thistle, straw, native or slough hay. The slogan, "One acre in grass-alfalfa mixture per head of cattle on the farm," is a good target to shoot at; and the maxim offered by the Saskatchewan Department in connection with its campaign for adequate feed reserves is equally profitable to remember: Livestock Plus Feed Reserve Equals Security.

Growthy Dairy Heifers

HOW much feed does it take to produce a good, strong dairy heifer from, say, birth to 32 months? At the Experimental Station, Fredericton, N.B., records have been kept for 11 years which show the average consumption of different feeds by 73 Holstein heifers from birth to two years, eight months. The average consumption per heifer during that period has been 387 pounds of whole milk, 3,389 pounds of skim milk and fat substitutes, 975 pounds of meal, 2.04 tons of silage, 2.93 tons of hay and 1.19 tons of roots, in addition to pasture for 273 days.

One reason why there are not thousands more good, strong, growthy dairy heifers when breeding age is reached, is that they are not fed adequately. Adequate feeding does not necessarily mean expensive feeding. It does mean adequate amounts of good quality hay, pasture and, where available, silage.

Younger calves cannot make good growth if, after having been well started, they are turned out and allowed to rough it for the next year on thin pastures, or around straw stacks, or both. Yearlings can get along toward good, growthy development on good quality hay or pasture, as long as they have water and salt. As a rule, only when hay or pasture is unsatisfactory, do heifers need a mixture of bran and oil cake to bring them into flesh. Heifers that freshen in the fall will be in good shape at calving time after a couple of months on good grass.

Long Use from Cows

SURVEYS in commercial dairy areas have revealed considerable variation in the useful lifetime of the average dairy cow. In some areas, the average cow was not retained more than six years in the herd, while in other areas three years was more like an average figure.

A New York dairy farm recently reported 10 cows with a combined lifetime milk production of more than 1,000,000 pounds of milk. They averaged 14 years of age, and in their most recent 10-month lactation period, all completed in 1949, had averaged 10,477 pounds of milk, with 415 pounds butterfat on twice-daily milkings.

The cows in this herd are Ayrshires, and for 39 years the herd has

Farm Service Facts

No. 15W PRESENTED BY



IMPERIAL OIL LIMITED

SELECTION AND INSTALLATION OF SPACE HEATERS

A space heater, described in simple terms, is merely an oil-burning heating appliance, designed to replace coal and wood-burning types. It can be used in any type of home . . . bearing in mind that there is a limit to the amount of space each size and kind of heater will heat. The new space heaters are an attractive piece of furniture, designed to harmonize with the other furnishings in the home.

There are several advantages in using space heaters. First, the amount of heat is easy to regulate . . . just a matter of adjusting the oil flow valve. Then, there is greater convenience and cleanliness in oil, as compared with wood or coal. And, another advantage . . . you can spend a night away from home without creating a fire hazard . . . without having to return to a cold house. All you do is turn the heater low and go on your carefree way.

Choosing A Heater

The most important point in choosing a heater is to get the right size. If the heater is too small . . . room temperature will be too low. If the heater is too large . . . it may result in waste of fuel. This point should be discussed with your dealer, who should be able to estimate the amount of heat needed . . . and recommend the correct size of heater. Before buying, it might be well to get the experiences of neighbours who have purchased heaters. Check, too, on the kind of service they have been getting through the dealer.

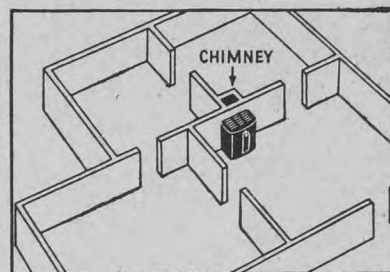
Tips on Installation

Having selected a heater of the right size, the next most important thing is location. Locate the heater as nearly as possible in the centre of the space to be heated. This will distribute the warmth evenly, and cut down use of fuel. Even more important in location, is to set the heater close to the flue opening into the chimney. This helps avoid elbows and long laterals which cause loss of heat. The back and sides of the heater should be at least three feet from wall or corner.

Insulation Pays Off

There is no point in trying to heat the surrounding countryside, and this is what you are attempting to do when windows and doors are loose fitting and when cold air comes in as fast as it can be heated. The ceiling is perhaps the most important section of the house to insulate, and is the easiest place to put insulating material on. Cold floors and room drafts also cut down the efficiency of any heater. Insulation

will pay for itself many times in fuel saved.



Place heater in centre of space to be heated and close to chimney, to get best distribution and least waste of heat.

Heater Must Be Set Level

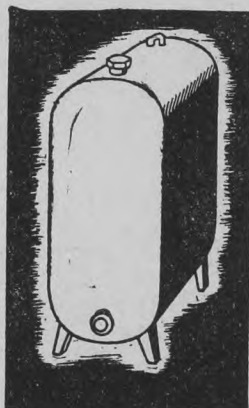
It is important to have the heater set level, to obtain correct fuel flow to the burner. While the position of the feed tank in relation to the burner is set by the manufacturer, it will work correctly, only if the floor is level. The float valve will then maintain a constant level of oil in the bottom of the burner (the quantity or level will vary with the different makes). If the floor level slopes toward the feed tank, not enough fuel will be delivered and the burner simply will not burn. If the slope is toward the burner, too much oil will be delivered, resulting in heavy smoke and carboning.

Fuel Storage

The feed tank attached to the burner is small in size, usually from two to five gallons in capacity. This means that additional fuel oil storage is necessary. A fuel storage tank properly installed, of at least 100 gallons, is ideal, as it is convenient and assures an ample supply of fuel at all times. This can be particularly important should deliveries be interrupted by blocked roads.

Some users of space heaters prefer the outdoor tank with automatic feed, as an added convenience. Such tanks should be placed so that the bottom of the tank is not less than six inches and the top of the tank not more than eight feet above the level of the fuel control valve. Be sure to locate the tank in such a position that it can be readily filled by the tank truck. Before installing any outside tank, consult the local authorities regarding fire regulations.

With a storage tank you don't have to worry about blocked roads in winter and early spring. You can assure yourself of ample supplies of fuel oil.



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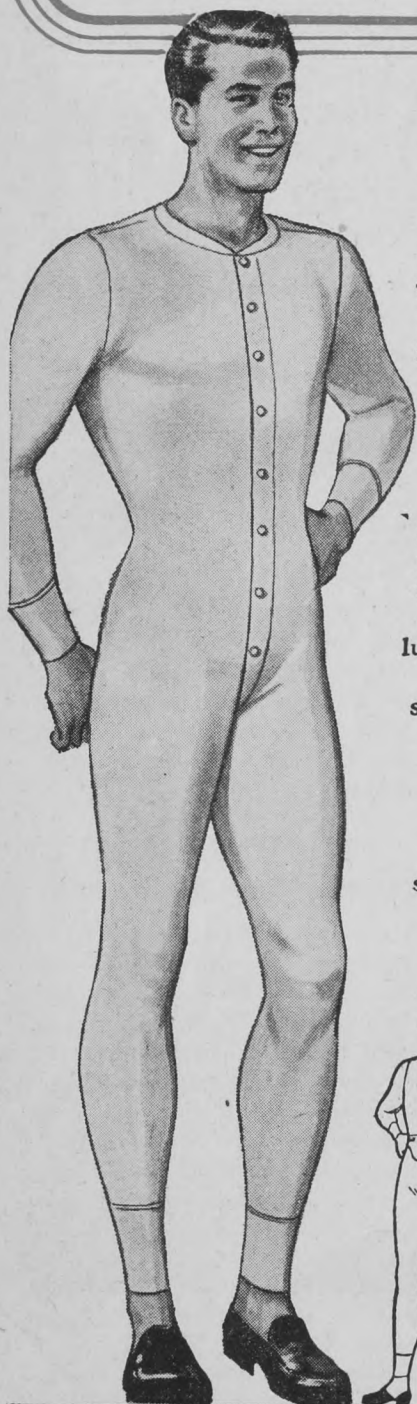
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Next Issue of Farm Service Facts . . . Operation and Care of Space Heaters

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been built up on the basis of type, plus production, plus health, plus longevity. For 22 years the herd has been tested continually in the U.S. Ayrshire Herd Test, and over that period of time has averaged 9,531 pounds of milk, with 390 pounds of fat, for 69 cows milked only twice daily. The manager of the farm, writing recently in the Breeder's Gazette, states that "Strathglass Farm has bred or developed more approved Ayrshire sires, more approved Ayrshire dams, and more cows that have produced over 100,000 pounds milk than any other Ayrshire herd now in existence."

Long-time production per cow cuts down the cost of replacements, which are a major overhead cost item.

Stanchions vs. Loose Housing

WHEN a representative of The Country Guide visited the Experimental Station at Lethbridge, Alberta, early in August, the construction of new barns was under way. The work at the station is developing to such an extent that it has been found necessary to move the livestock farther away from the central buildings and to modernize the livestock set-up at the station.

In the new buildings which are expected to be in operation in 1951, it is proposed to test the common system of stabling dairy cattle in stanchions, alongside the newer method of loose housing, in which the cows are not confined at any time except when being milked in what is called the "milking parlor." At other times, they may wander in the exercise yards, the feeding area, or the loafing area, as they choose.

The station reports that it is intended to test the advantages claimed for loose housing against the obvious disadvantages. The advantages are that the cows have greater comfort, the main barn can be of cheaper construction, less capital need be invested in dairy equipment, daily barn cleaning is eliminated, better manure is secured, and labor is used more efficiently. Some of the disadvantages are that increased bedding is required, the more timid cows may not have so good an opportunity to feed, and individual cows do not get the same attention as a rule.

It is proposed as the test progresses to secure information as to the amount of exposure a cow can stand, the amount of bedding required, type of low-cost building required, and a comparison of milk production costs.

Nutritious Forage

CAN cattle tell when pasture is nutritious? Any stockman knows that cows will frequently leave one kind of grass in preference for another, and the common reason given is that "they like it better." Professor W. A. Albrecht of the University of Missouri is one of the foremost exponents in the United States of the idea that animals can select the most nutritious feeds and the belief that soils rich in minerals provide rich, nutritious forage.

Recently he recounted the experience of a farmer whose 100 cattle marched all season right across a permanent pasture, knee-deep in bluegrass and white clover, to get to a field of last year's cornstalks, which was not being cropped because of labor shortage, and was growing up with weeds. The cattle not only passed

up the bluegrass and white clover, but passed by a field of soybeans to get at the stalk field. This field was covered with cockleburs, nettles, plaintain, wild lettuce, shepherd's purse, sheep sorrel, and many other weeds, but the cattle kept them cropped close to the ground. The owner explained that the cornfield had previously been well fertilized, whereas the pasture and the soybeans were growing on land that had not been treated.

Dr. Albrecht takes the view that, to the cows, plants growing on poor soil are weeds. He recounts, in Capper's Farmer, an instance where a botanist listed the plants on a western plain, where a large herd of cattle were grazing. He found 65 different kinds of plants, and not one of them was refused or left untouched by the cattle. Palatability is a variable factor apparently, and Dr. Albrecht's view appears to be that to the cow it is a matter more of nutritive quality than of "taste."

Community Pastures

TODAY farmers, and particularly stock raisers in the drier parts of the prairie provinces, have good reason to appreciate the results which have been secured by the development of community pastures, over a 15-year period, by P.F.R.A. Of two-fold design, these large-scale segregations of sub-marginal land into areas of native and cultivated pastures, have provided a backlog of security for some 5,500 prairie farmers, who, during the year ended March 31, 1950, pastured more than 70,000 head on 81 of these pastures.

Now occupying nearly 1½ million acres of prairie land, furnished with some 800 stock-watering dams, dug-outs and wells, these pastures contain about 150,000 acres of weedy and run-down farm land which has been reclaimed to productive purposes by artificial reseeding and organized management. The carrying capacity of these pastures is gradually increasing. It is now twice that of 1938. About 400 purebred, beef-type bulls are in service on the pastures. The pasture fee of 50 cents per month for cattle, seven cents for sheep and 75 cents for horses, carries with it such services as dehorning, marketing and control of diseases and insects.

Tankage and A.P.F.

TANKAGE today "is often not so good a product as it was several years ago, because of a change in the ingredients going into its composition," is the conclusion reached by the Department of Animal Science, University of Alberta, following test-feeding of 28 purebred Yorkshire weanling pigs, divided into four lots of seven each. The experiment yielded no indication of a superiority in rate and efficiency of gain of the lot receiving their protein partly from an animal source (tankage) over those receiving their protein from a vegetable source (soybean meal). "This would indicate," said J. P. Bowland, who reported the experiment, "that the soybean meal used in this trial was similar in value to the tankage on an equal protein basis."

This experiment was primarily designed to test the value of animal protein factor (A.P.F.) as a supplement in fine rations. All lots were fed the same basic ration and were

housed in the piggery with no access to sunlight or soil. They were hand-fed three times daily until they reached 125 pounds, when the basic ration was altered for all lots; and twice daily until they reached 200 pounds. The basic ration throughout consisted of oats, barley and a supplement of linseed oil meal, alfalfa meal, iodized salt and limestone, to which was added for lots one and two an equal amount of tankage, and for lots three and four a similar amount of soybean oil meal. In addition, lots two and four, one receiving tankage and the other soybean oil meal, but otherwise fed alike, received one-ninth of a pound of A.P.F. in each 100 pounds of feed.

The active ingredient in A.P.F., a recent discovery in the science of animal nutrition, was only discovered in 1948, and was named "Vitamin B₁₂." The discovery of A.P.F., and the isolation from it of Vitamin B₁₂, verifies and explains the fact, long established in practice, that not only are animal proteins, such as tankage and fishmeal, generally better supplements to a grain ration than plant proteins, such as linseed oil meal, but that the hog knew what it was doing when it followed the cow to feed. In the case of the Alberta experiment, oats and barley were used as the basic grains because they are the grains nearly always used in the production of Alberta bacon hogs.

The test is not considered to be altogether conclusive, and further tests are planned in order to explain, if possible, why lot four, receiving vegetable protein plus A.P.F., gained at a more rapid rate than lot two, receiving animal protein plus A.P.F., during the fattening period. The carcass grades were very much against lot four, which showed one grade A and six B1. It is believed that the rapid gains made by these pigs between 125 and 200 pounds may have caused excess fat, but it is believed doubtful if there was any real significant difference among the four lots. The other three lots each had four grade A's and three B1's. The cost of the 100-pound gain in lot four on vegetable protein was slightly lower, over the two feeding periods, but the cost of the A.P.F. supplement was not included because its cost is constantly changing and will undoubtedly become cheaper than its approximate cost of \$1.60 per pound at the time of the experiment.

Pig Economics

AWAY down south in Oklahoma, which incidentally is a wheat state, they have the pig business worked out on the basis of simple economics. It goes something like this:

It takes the first five pigs sold from each litter to offset the cost of labor and the investment in sow and equipment. This means that the farmer doesn't make any money raising pigs until he sells the sixth pig per litter.

The second point is that only about three out of each four pigs farrowed are raised to market age, so that if two pigs die out of a litter of eight, the sixth pig represents the only money there is in that litter.

The average size of litter in western Canada is probably about seven. Ten pigs marketed per litter is worth talking about. In addition, if the Oklahoma people are right, it represents the difference between one profitable pig and four.

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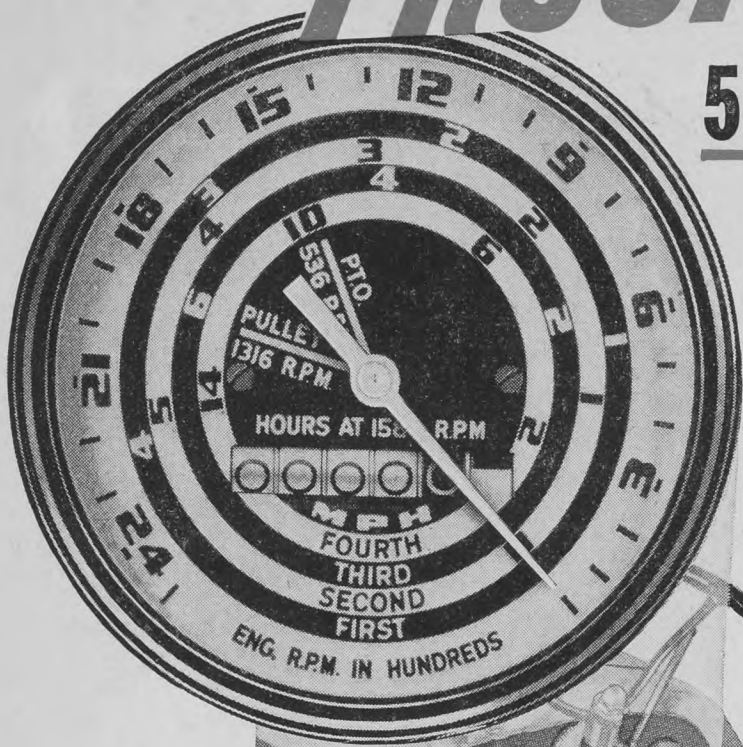
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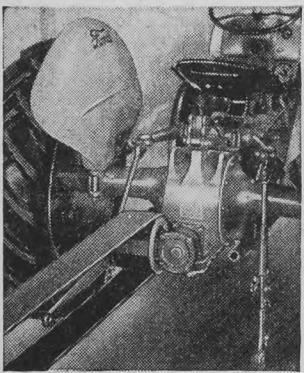
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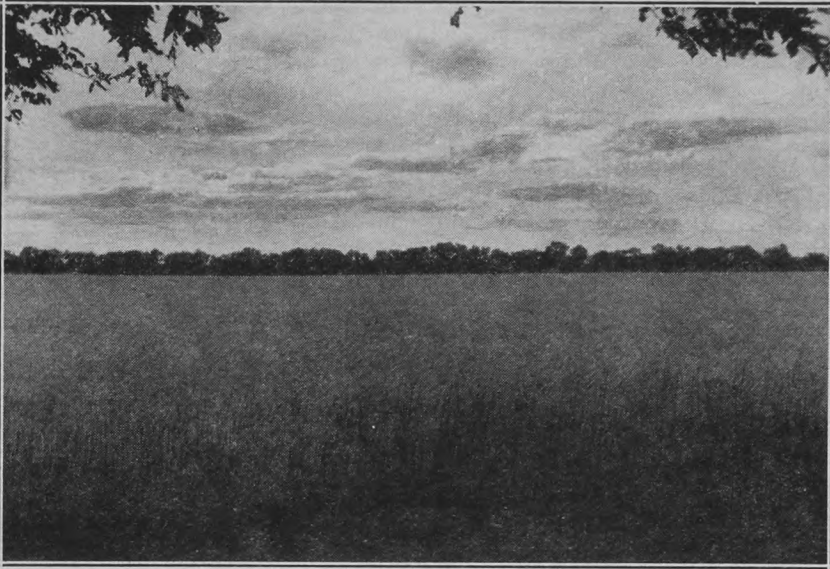
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FIELD



Aside from its excellence, this field of Redman wheat at the Experimental Farm, Indian Head, Sask., is typical of the other rust-resistant wheat varieties now in use, which are not resistant to the new race 15B, now present in at least 10 states of the United States.

Stem Rust Life History

DONALD G. FLETCHER, executive secretary, Conference for the Prevention of Grain Rust, Minneapolis, said after a trip through the Dakotas and western Minnesota: "I have never seen a more virulent type of rust infection on any wheat—Marquis in the '20's and Ceres in 1935 not excluded—as is now present in the grain fields of the spring wheat area." As reported in *The Country Guide* for September, stem rust this year is partly caused by race 15B, a close relative, but much more virulent than race 15, which has been known since the early '20's. Race 15B was identified about 10 years ago.

There is little doubt among plant breeders and pathologists that this new rust will enter the north-to-south wind-blown migration of stem rust in the autumn, and the south-to-north migration in the spring and summer. It is pointed out that susceptible grasses, such as wild barley, and volunteer grains between the northern states and northern Mexico, will provide suitable stopover points during the southward, autumn migration and that next spring, provided all conditions favorable for infection, growth and distribution of the rust are present, it can move northward without difficulty. It should be emphasized, however, that all these conditions must be present during the journey in both directions, to produce a destructive rust epidemic next year in the spring wheat areas of North America. Nevertheless, few commercial varieties of oats or barley have resistance to rust and none of the wheats are resistant to race 15B, so that the situation with respect to surpluses of grains could change radically in a very few years, if race 15B of wheat stem rust, race 7 of oat stem rust, race 45 of oat crown rust, or the seldom-found race 59 of barley stem rust, should become epidemic.

Stem rust of wheat is caused by a fungus. It is spread by means of millions of tiny, single-celled structures called spores which cannot be seen individually without a microscope. On the stems of wheat plants the rusty-looking or red areas are really pustules consisting of a large number of these tiny spores which have been thrust outward by the fungus develop-

ing in the interior of the stem. Each tiny spore, when blown about or carried to another wheat plant, is capable of germinating and entering through a breathing pore of the wheat stem, inside of which it branches and re-branches into a growing body of fungus. This mycelium, as the branches are called, feeds on the wheat plant, using food which the plant needs to fill the heads. In a week or ten days a new crop of spores are formed and pushed through to the outside of the stem. It is these red, summer spores which have given the name Red Rust to this disease in the summer months. Successive crops of red spores appear until about mid-August when the wheat approaches maturity. Then the rust fungus stops producing red or summer spores and starts to produce black or winter spores, which are responsible for the term Black Rust. These black spores cannot infect the wheat plant, but remain over winter on wheat straw or refuse, and germinate there in the spring. They are not blown around like the red spores, but produce a little tube, on which a third type of spore is formed called a sporidium.

These sporidia must find a barberry bush if they are to continue the life history of stem rust. Since we have no barberry bushes in western Canada and since the black spores cannot find a new host in the spring in western Canada effectively, and since there is no evidence that any of the red spores can live over winter here, the disease must come to us by other means. When the sporidia reach the barberry (in the United States) another stage develops, namely, the cluster-cup stage, the spores from which can set up infection in wheat and start the cycle again by the production of red spores, which are blown about by the wind and eventually reach us.

Kill Weeds in the Fall

THE Lethbridge Experimental Station calls attention to one sure thing about weeds, namely, that they use valuable soil moisture whenever they are growing. Even where the weed population has been very much reduced by the use of chemical weed killers, cultivation is still advisable whenever weeds are growing. It is true, the station points out, that many



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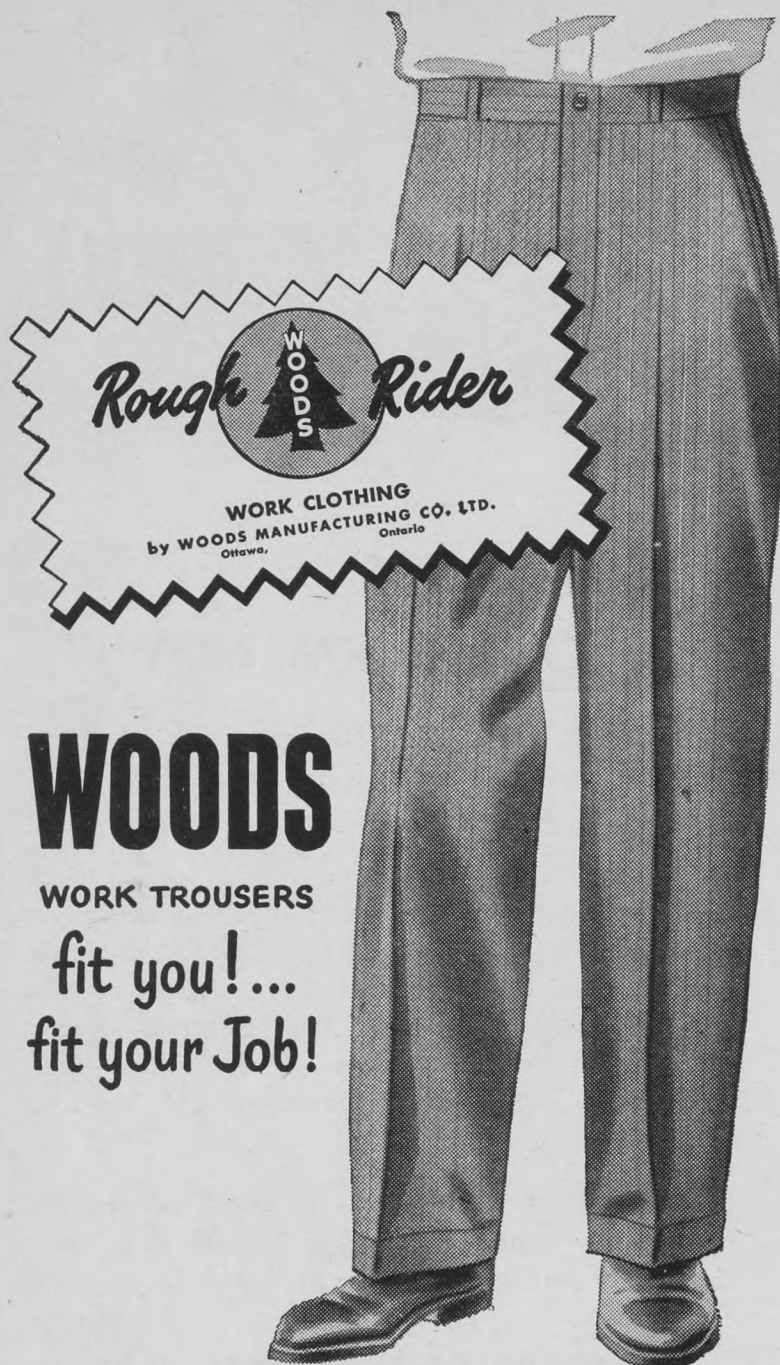


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of the weeds may be killed by frost, but if allowed to grow until that time, they will use up a considerable amount of valuable moisture. Fall cultivation in most instances also helps to reduce the number of weed seeds and injurious insects, which would otherwise do damage next year.

A word of caution is offered, however, as to the danger of bare and pulverized soils, wherever there is any likelihood whatever of winds in the early spring that might cause drifting. A one-way disk will kill the weeds, but it will also flatten out and partly cover the stubble, so that it will neither hold the snow during the winter, nor prevent drifting in the early spring. In the Lethbridge area and other places where it is very dry and not too stony, the blade weeder kills weeds satisfactorily without knocking the stubble down. Lethbridge reports that "in years when there has been excessive weed growth, after-harvest blade cultivation at that time has improved crop yields the next year, while one-waying has not. If a blade weeder is used, cultivation should be shallow; just deep enough so that the blade will clean. In this way the best kill of weeds is secured.

In areas where moisture is not so dominant a factor, fall cultivation for the conservation of moisture may not be quite so important. However, there is no place on the prairie provinces where weeds are not a menace to crop yields, and where moisture is so plentiful that no attention is required to its conservation.

Frosted Grain This Year

IT is too early as this is written to obtain any accurate idea of the quantity of frosted wheat, oats and barley which will have resulted from the 1950 crops of these grains. The quantity will probably be substantial, and farmers whose crops have all been frosted should take two steps promptly: (1) Send a sample of the crop (a pound in each sample) to the nearest seed testing laboratory for testing as to germination and purity; and (2), in cases where the grain is obviously useless for seed next spring, make early arrangements for a new seed supply.

As early as the last of August, it was apparent in Saskatchewan that a considerable quantity of oats and barley, which was frozen early, would not be fit for seed; and in some areas it was clear that a considerable portion of all wheat produced in these areas would be in the same category. Reserves of seed grain are not likely to be heavy, and the probability is that supplies of commercial grain were pretty well cleaned out before the end of the crop year in order to take advantage of the higher 1949-50 pool price. This cannot mean other than that supplies of seed grain in some considerable areas will be very scarce. Prompt testing for germination of all doubtful samples is, therefore, in order, as soon as this can be done.

For testing the germination of grain samples, send the samples to Plant Products Division, Canada Department of Agriculture, at the following places in western Canada: Dominion Public Building, Winnipeg, Man.; 523 Federal Building, Saskatoon, Sask.; Immigration Building, Calgary, Alta.; or Postal Station C, Vancouver, B.C.

As the result of a policy announced by the Canadian Wheat Board, it will be possible for individual farmers to exchange whatever commercial quality of wheat, oats or barley they happen to have for good-grade wheat, oats or barley from all elevator companies, on a bushel-for-bushel basis. Any grower desiring to take advantage of this provision, and thus guarantee his seed supply for next spring, must, in addition to the delivery of his own grain, make a cash settlement for the difference between the Wheat Board's domestic sale price on the date of the exchange, for his own lower quality grain, and the higher grade obtainable from the elevator companies. Since the Canadian Wheat Board will not have the handling of more than one of the two lots of grain involved in each transaction, the farmer who exchanges grain must pay the usual elevator charges on the grain he buys, in cash. Where elevators are equipped with adequate seed-cleaning machinery, it would be possible for the grower to obtain better seed than he now has, or perhaps can obtain in his community, and at the same time have it cleaned in the elevator, if he so desires.

2,4-D Off-Type Heads

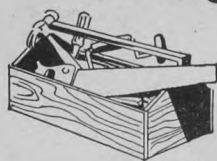
REGISTERED seed growers have been extremely cautious about using the weed-killing chemical 2,4-D, until more could be learned about the possible effect of the chemical on wheat as seed. For the past few years the Experimental Farm at Indian Head, Sask., has been treating several varieties of oats with 2,4-D, using the chemical in its ester, amine and sodium salt forms, and at rates varying from two to 32 ounces of acid equivalent per acre. Each crop was sprayed at three stages; the three-leaf (six inches high), shot-blade, and at heading.

E. Buglass reports from the Farm that numerous off-types have appeared as a result of the chemical, but the quantity has varied with the variety and the form and rate of application. The kinds of off-types, however, have remained the same, whatever the treatment. These appear to be split leaves, onion-like leaves, irregular blister-like lesions, twisted and distorted panicles, and frequently twin panicles or heads arising from the top joint, instead of the usual one.

It has been noted that when the oats were treated at the shot-blade and heading stages, very few off-types appeared. Most off-types come after treatment at the six-inch stage. Ajax seems to produce the fewest off-types and Exeter the most, with Victory and Vanguard nearer Exeter than Ajax. Similarly, the sodium salt resulted in the fewest off-types and ester in the most, with the amine salts producing fewer off-types, but more nearly similar to those produced by the esters. Also, the rate of application resulted in considerable variation. It was notable that the two-ounce rate of ester produced more off-types in all varieties than did the eight-ounce rate.

Of special interest to registered seed growers is the fact that seed from off-type plants has so far been grown to the third generation. Up to this time there has been no indication that the off-type characters are inherited. All plants grown from seed of off-type plants have been normal.

Building Ideas FOR THE Farm



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• There are always dozens of building jobs to do on a farm. They vary in size from complete new buildings to minor repairs and remodelling. One thing you should be sure to do before you undertake any major job is to get as many facts as possible on up-to-date methods and materials. Building materials manufacturers like Johns-Manville can supply you with informative booklets and folders that will be of great help in your planning. You should also visit the Johns-Manville dealer in your district and see actual materials.

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In addition to a wide range of Building Materials for the farm, Johns-Manville can provide you with complete plans for many different types of farm buildings. These plans have been developed by the Better Farm Building Association. Plans available include, 20-Cow Dairy Barn (1 storey); Garage and Work Shop; All Purpose Barn; Machine Storage Shed and Repair Shop; Milk House; Multiple Poultry House; 3-Bedroom Farm House. Each set of 17" x 22" working drawings is available from Johns-Manville for \$1.00. They are complete in every detail including electrical, plumbing and ventilation specifications. To order any one of the farm building plans listed above send money order or cheque for \$1.00 to Canadian Johns-Manville, Dept. 165, 199 Bay Street, Toronto. Be sure to state clearly which plan you wish.

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Saskatchewan Forage Crops

THIS fall, for the fourth year in succession, forage crop seed is being made available to Saskatchewan farmers under a provincial policy inaugurated in the fall of 1947. According to a statement made recently by W. H. Horner, Field Crops Commissioner, this policy, since its inception, has resulted in the sale to farmers of 680,000 pounds of seed, enough for 77,990 acres, sold to 5,364 farmers of the province.

Under the policy, Saskatchewan farmers may buy seed from the Department of Agriculture for what it costs the Field Crops Branch in cartlots; in other words, it is shipped prepaid and without any charge for bagging and handling. Alfalfa inoculin is also supplied free.



W. H. Horner, Saskatchewan field crops commissioner, examines an alfalfa-brome-crested wheat grass field at Midale.

The Saskatchewan forage-crop policy was originally introduced for the primary purpose of encouraging the use of alfalfa in the prairie areas of the province. The policy was recommended to the department by an alfalfa conference attended by representatives of farm organizations and both Dominion and Provincial agricultural services. Mr. Horner not long ago checked up on some of the farms to which forage crop seed had been supplied. He reported seeing one 15-acre field, seeded four years ago on the farm of Dwight Nelson, north of Midale, in southeastern Saskatchewan, which was exceptionally weed-free, and from which it was expected that 20 loads of hay would be secured. Last year the field was fairly weedy, according to the owner, but about a load per acre was harvested from it. It had been seeded at the rate of 1½ pounds of alfalfa, together with two pounds of crested wheat grass and four pounds of brome, without a nurse crop.

A few miles away was the farm of David and Arthur England, north of Macoun. They secured 45 pounds of alfalfa seed and 180 pounds of a brome and crested wheat mixture, also in the fall of 1947. A little of the crested wheat grass was seeded that fall, from which a couple of bushels of seed were secured the following year. The remainder of the purchased seed was sown on 12 acres of summerfallow, with wheat as a nurse crop. A 30-bushel wheat crop was harvested in the fall of 1948, and the following year 12 loads of hay were

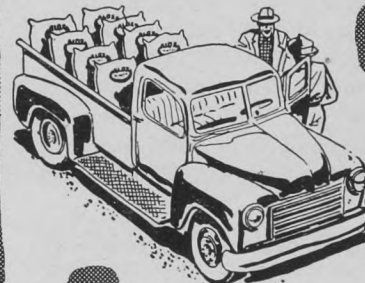
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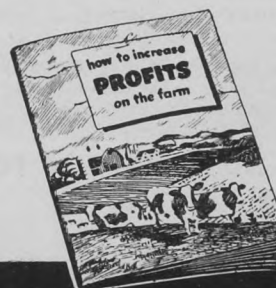
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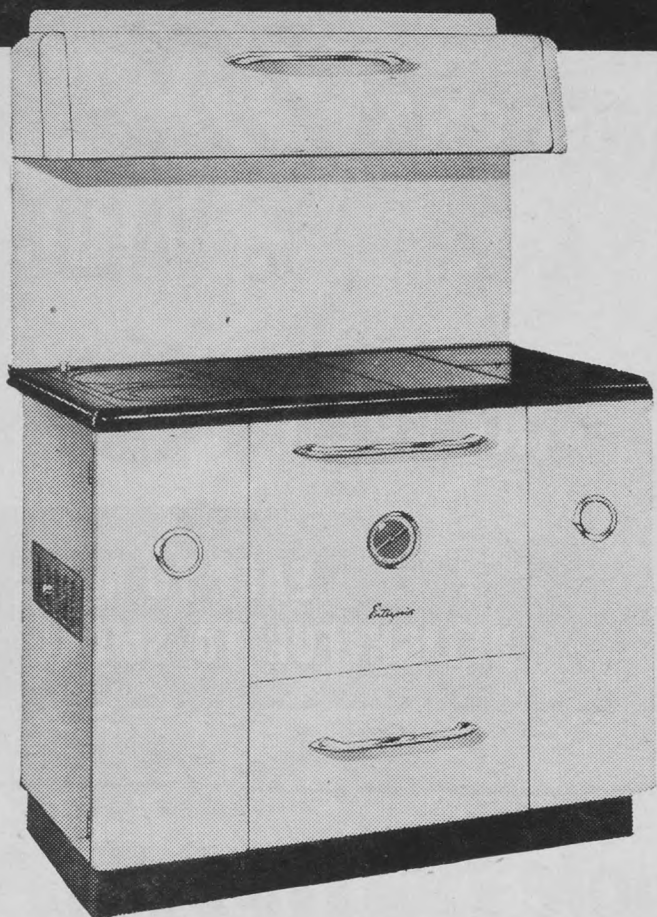


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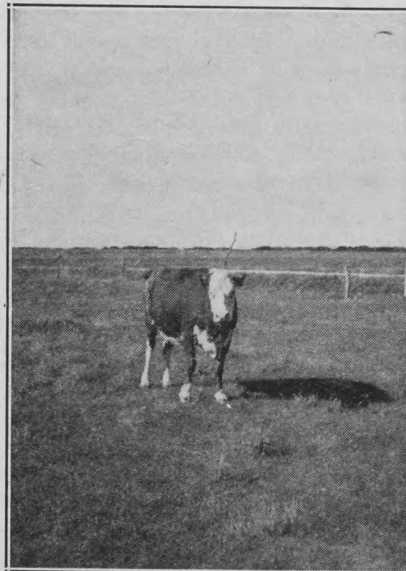
cut off the field, with an expectation of twice that amount in 1950. South of Bienfait, the Owen farm carried 60 acres of mixed brome and alfalfa, seeded in the spring of 1947 at the rate of two pounds of alfalfa and eight pounds of brome. This was seeded for pasture purposes and a good stand secured. This summer one head on 2½ acres was not sufficient to keep the grass down. Native pasture in 1950 was carrying about one head for each 16 acres.

Mr. Horner's conclusion is that when seeded primarily for pasture purposes, about a quarter more of the alfalfa and of the grass should be seeded than when seeding is intended for hay. Originally, in fact, the forage policy of the department had been intended to encourage the development of hay meadows, but it has been since expanded to include pasture mixtures.

Several fields visited indicated the advisability of seeding alfalfa and brome mixtures as compared with seeding brome alone. The alfalfa appears to prevent the grasses from becoming sod bound, and from 50 to 100 per cent greater yields are secured from the mixture.

Mr. Horner also recommends the seeding of forage crops for the south-western portion of the province. Many farmers there have taken advantage of the forage seed policy, and experience has apparently justified the following comment: "Even in the driest area of the province, alfalfa is proving to be the best perennial hay crop. Where it is sown on good land, low-lying land or land with a high water table, average yields of about one ton per acre can be expected from alfalfa grass mixtures."

This fall the Minister of Agriculture, Hon. I. C. Nolle, has announced the continuation of Saskatchewan's forage crop program for fall seeding, and has advised that several mixtures are for sale under the policy at prices, especially for grass seeds, lower than last spring. A mixture of two pounds alfalfa, two pounds brome and four pounds crested wheat grass per acre is available at a price of \$2.40 per acre. Other mixtures are two pounds of alfalfa and five pounds of crested wheat grass per acre at \$2.00 per acre, a combination, at \$3.40 per acre, of two pounds of alfalfa and eight pounds of brome grass.



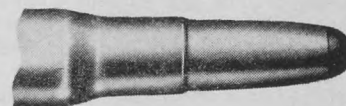
This native pasture has a low carrying capacity.



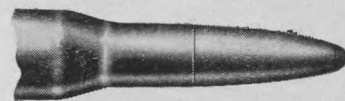
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Alfalfa that Creeps

Continued from page 11

character. This is an interesting phenomenon which indicates that a new character was produced as a result of the cross. When two of these creeping-rooted plants were crossed to produce the second generation, about 50 per cent of the resulting offspring possessed this character. In still later generations, from certain crosses, up to 90 per cent of the offspring were creeping-rooted. This indicates that a variety can be produced that should be nearly 100 per cent creeping-rooted.

THE work to date has been very encouraging and many lines have been developed which possess the creeping-rooted character to a marked degree. The creeping-rooted alfalfa spreads by underground, horizontal root stalks, which are generally located six to eight inches underground. In two years, an individual plant may occupy an area three to six feet in diameter. Anyone familiar with common, tap-rooted alfalfa, which never spreads more than six inches, will realize that this is a remarkable characteristic. The crown of the creeping alfalfa is definitely underground, protected from tramping and grazing of livestock, as well as from severe climatic conditions. Experiments conducted at Swift Current during the dry years of 1948-1950 indicate that the creeping alfalfa is much hardier, and persists under conditions when Grimm and even Ladak killed out 100 per cent.

Although the creeping-rooted character and winter hardiness had been incorporated into numerous lines, it was realized four years ago that the majority of the best lines produced very little seed. Consequently, in recent years it has been necessary to

the resulting offspring generally has a greenish-yellow flower. In later generations, all types of flower colors make their appearance, some being bronze, others cream, and still others pale blue. Reversions to the color of either parent also occur. However, in most of the better creeping-rooted lines, a tendency toward yellow flower color predominates.

THE development of a new variety of any crop is usually a long-time proposition, and alfalfa is no exception. Where a perennial crop is concerned, it may take a considerably longer time than with annuals, because how can one be sure that the new variety or strain is drought-tolerant, grazing-resistant, or long-lived, if one does not test the material for many years. In alfalfa, the crossing work is very laborious, because all the crosses have to be made by hand. This work is usually done in the greenhouse. A person acts as the pollinating agent instead of the bee; and, of course, only those plants are crossed which the breeder desires to cross. The seed resulting from artificial crosses is started in the greenhouse and later transplanted to the field, where each plant is observed and studied in detail. When one stops to consider that more than 25,000 plants are studied in this manner at Swift Current at the present time, one gets an idea of the amount of work involved.

Just as animals differ from each other, so do plants. Notes are taken on all progeny (offspring) and the "combining ability," or "nicking ability" of their parents is determined for various characters. If the offspring show the creeping-rooted character to a marked degree, along with other desirable characters, the parent plants are considered good combiners (nickers) and are used in further work. That is, plants are evaluated on the basis of progeny performance. Finally,



Observation plots of alfalfa. Left: Showing restricted area of growth of ordinary varieties. Right: Spreading growth of a creeping rooted strain.

concentrate on selecting for good seed yield. Progress is being made along this line and today it can be said with assurance that creeping-rooted alfalfa can also have good seed-set.

The forage value of the creeping-rooted alfalfa compares favorably with that of Grimm or Ladak. However, most plants have a narrower leaf and the stems may be somewhat finer. The "come back" after cutting is slower than in common varieties, but this latter quality is a desirable characteristic, because the plants remain dormant during adverse dry climatic conditions, thus avoiding over-exhaustion of their root systems, and subsequent killing.

Since flower color is an obvious character, something should be said about it. When a blue-flowered plant is crossed with a yellow-flowered one,

on the basis of results from such tests, strains are built up. This first phase of the breeding work took about 12 years. The second phase, namely, testing the new strains for grazing resistance, by using sheep or cattle to pasture them continuously, has just got well under way. The strain that proves best under such treatment may eventually be released as the pasture variety for which the livestock man is hoping.

It is unfortunately necessary to point out to the reader that no seed of creeping-rooted pasture alfalfa is available for distribution. At least another four or five years will be required before a variety can be made available for commercial seed increase.

(NOTE: Mr. Heinrichs is forage plant specialist at the Experimental Station, Swift Current, Sask.)

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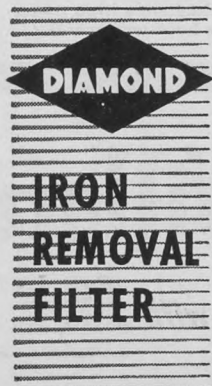
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HORTICULTURE



Ole Spagrud, Rockglen, Sask., in his small-fruit garden from which strawberry shortcake is available in season, at short notice.

Hidden Fruit

An account of how the end of a trail, like the end of a rainbow, is sufficiently rewarding to be worth the effort

DESPITE the comparative openness of the prairie provinces, some farmsteads here and there are really hard to find. I had one such experience late in July, when driving south of Assiniboia to Rockglen, near the United States border. I was headed for the farm of Ole Spagrud.

I didn't have much luck in Rockglen except to get started on the right road. However, I was told where to find Mr. Spagrud's brother's place, and to inquire there. Not many people went on to Ole Spagrud's and neither of the two men in the garage could give me directions. I found his brother's place all right, but no one was home. I knew I had to go farther, but how? I had reached this place by crossing a newly worked summerfallow, and if I was not to go back and give up I must take the only track of any kind visible on the way in, which was a car or wagon track leading off in another direction across the summerfallow. It was not a worn trail and there seemed to have been only one or two vehicles over it. However, there was nowhere else to go so I took it. Eventually it led me to a road, and a little later to a young man operating a tractor near the road. He told me that he was Mr. Spagrud's nephew and that I was on the right road, but that from there on I was pretty much on my own, except that I should not take the first trail off to the right. I crossed a railroad track and immediately met a barbed wire gate, which I managed to negotiate; and then headed across raw, native, rolling prairie toward nothing but more of the same. It was pleasant going, however, and after what I thought was a mile or two I successfully evaded a trail, which I thought I was supposed not to take, and kept on. I passed through another barbed wire gate, and not long after came to a third. Here, I was not so fortunate. There had been some fencing going on recently and in the process a small shingle nail was dropped, which the car, of course, picked up. I changed the tire, admired the gate, and went on. After some more of this, I dropped over the brow of a hill and there was a farmstead, nestling neatly alongside a creek-bed, and in a moment or two I was there.

Mrs. Spagrud, a pleasant, sprightly

woman, came out immediately and offered to go with me to where her husband was summerfallowing three-quarters of a mile away. I felt, however, that having achieved so much on faith that afternoon, I could negotiate another three-quarters of a mile, and I did locate Mr. Spagrud without much trouble.

Ole Spagrud has a section of land on which he settled in 1913. His first crop was grown in 1916, and for years he and his brother, both unmarried, farmed together. Later both married, and now he and his wife operate alone, which as I found later, meant some enforced neglect of his fruit trees.

Mr. Spagrud is a pleasant, quiet-spoken, slender and well-cared-for man, who, as a Norwegian, lives up to the courtesy and humor one is led to expect from people of his nationality. Both he and his vivacious ex-school-teacher wife enjoy their comparative isolation, and it seemed to me they had good cause to do so.

Mr. Spagrud has always liked fruit and in the early years planted along the sides of the creek, protecting his fruit trees with a shelterbelt. He was as much interested in the blossoms as fruit, although, of course, the fruit was welcome if it came. He has, over the years, tried a great many varieties of apples, crabapples and plums. Until recent years, he told me, he had always looked after them carefully. Now, being alone on a section of land, and with large vegetable and small-fruit gardens to take care of, he found it impossible to give the trees the attention they might have.

Years ago Mr. Spagrud had dammed up the creek and made a small pond from which he irrigated his garden. Later, P.F.R.A. assisted in the enlargement of this small irrigation system and today two good-sized vegetable gardens and one small-fruit garden can be, and are, irrigated as required. Trees abound around each of these gardens, which are well cared for, and productive. Water flows to the gardens by gravity and at the time of my visit the Herbert raspberries in the small-fruit garden promised a good fruit crop, while the everbearing strawberries were excellent, as I was able to prove by prompt and generous disposal of Mrs. Spag-

rud's strawberry shortcake, topped with delicious whipped cream.

This year has been a bad year for fire blight, and Mr. Spagrud's fruit trees were no exception. Many of them in one location were badly blighted, which was no doubt furthered by the excessive humidity and shade. One enjoys seeing good, generous, well-cared-for gardens and orchards. It always seems a little unfortunate that, if one of these must be sacrificed for lack of time, it must be the orchards. The choice is sensible enough and practical, but nevertheless regrettable. Fruit trees, it must be admitted, do require care somewhat out of proportion to their yield in some years. Cultivation, manuring, some occasional pruning, or trimming, protection against mice, rabbits, disease and insects, all make calls on the time of a farmer, busier than he ought to be under the pressure of modern farm production. The small fruits take less room and less effort. They are also, perhaps, more uniformly rewarding. —H.S.F.

Pruning Fire-Blighted Trees

TREES that have been injured seriously by fire blight during the growing season may sometimes be saved by severe pruning late in the season, according to W. E. Brentzel, N.D. Experiment Station pathologist.

After the leaves have fallen it is sometimes difficult to locate all the affected branches, but wherever these can be found they should be cut off at least a foot below the diseased wood. Stems that are half an inch or more in diameter often develop cankers at the end of the growing season, and these cankers generally indicate the lowest point on the branch at which infection is present. Apple trees should, therefore, be pruned well below all such cankers that are visible.

Fire blight is a bacterial disease that is carried from tree to tree by insects, wind and rain. It begins to infect the blossoms in the spring and carries on to the flowers and the new growth. One infected tree is a source of infection for others. Some varieties are resistant, and Brentzel mentions Dolgo crab, Northwest Greening and Patton Greening as having considerable resistance. The sprays used for other apple diseases may help, but alone will not give satisfactory control of fire blight. It is generally recommended, when pruning for fire blight, or cutting out infected parts, to disinfect the saw or shears after each cut.

Pruning Red Raspberries

THE red raspberry is one of the most popular of the small fruits. It is a cane fruit of the same group as the purple and the black raspberry, the loganberry and the blackberry. It bears its fruit in any year on the wood produced the previous year; and once the fruit has been produced on a cane that cane is of no further commercial value.

Because of this fact, the best time for pruning raspberries is immediately, or shortly after, the harvesting season is completed. If the raspberry plantation has not already been pruned, there is still time before freeze-up. Cut out all canes that have borne fruit and all the weak and spindly canes, leaving the remainder 6-8 inches apart. It is well to use a pruning hook to remove the canes,

since this eliminates the bending necessary with a pair of ordinary pruning shears. The canes should be taken off just as close to the ground as possible and without injuring the younger canes to be left.

Removing the canes fairly promptly helps to keep down diseases on canes and leaves, and allows more room for the new shoots which are to bear fruit. It is also better to burn the old canes promptly.

If the raspberries are being grown in a position which is in any way exposed to severe winter conditions, it may be advisable to lay down the canes for the winter. This may be done by bending the canes and covering the tips with soil, leaving the accumulated snow to cover the remainder of the canes or, under severe conditions, covering the canes as well. Whatever is done, care should be taken to remove any earth or covering in ample time in the spring.

About Rabbits and Mice

AS soon as the grass in the fields begins to dry and the mice start looking for winter quarters is the time to take control measures against any winter depredations by them, according to C. R. Ure of the Morden Experimental Station. He recommends gopher poison placed in some small container, more or less covered with straw. Discarded milk bottles, 24-ounce tin cans with the open ends partially closed, or a wooden box, 12x6x4, open at both ends, make satisfactory containers. These containers are laid on their sides. The poison may need replenishing just before snow flies.

Rabbits may not be so easily handled. Repellents tested in the prairie provinces and giving fairly satisfactory results include a resin-alcohol mixture. This consists of two pounds of resin dissolved in a quart of denatured, ethyl alcohol. The mixture is painted on trunks and all branches likely to be within reach.

Wintering Dahlias

TO winter dahlias successfully, cut the plants off just above the ground level after the first hard frost. About a week later, dig up the clumps with a fork, loosening them all the way around about 10 inches from the stalk. Remove carefully, and take away the dirt gently to avoid breaking the necks of the tubers. Next, place the clumps on a lump of soil or other support, and leave them to dry for three or four hours in the shade, before putting them into storage.

When all the moisture has disappeared, the stems should be cut off within three inches of the crown, preferably using a small, fine-toothed saw. Pack the clumps tightly together in boxes or baskets with dry sand, dry peat or Vermiculite as a packing material. Sand makes the containers heavy to handle. Place these in a cool, dark part of the basement, preferably at a temperature from 42° to 50°.

Early in December, remove the clumps and inspect them for stem rot, cutting away any decay visible and dusting cut parts with dusting sulphur. If signs of shrivelling are present, moisten slightly. If the packing material is moist or damp, dry it out and repack as before. About April 15, take the clumps out and divide them with an eye to each tuber. Whole clumps should not be planted.

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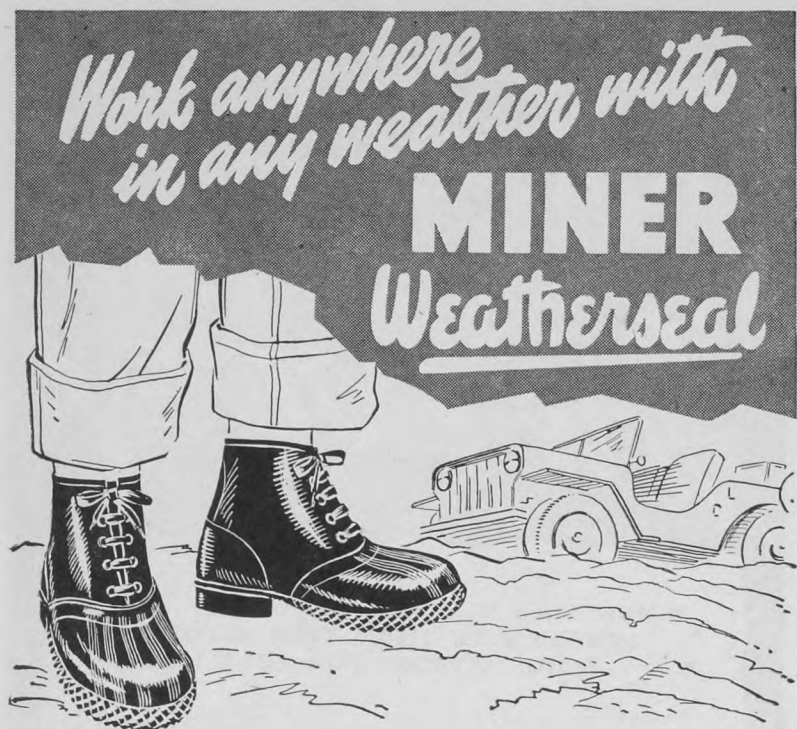
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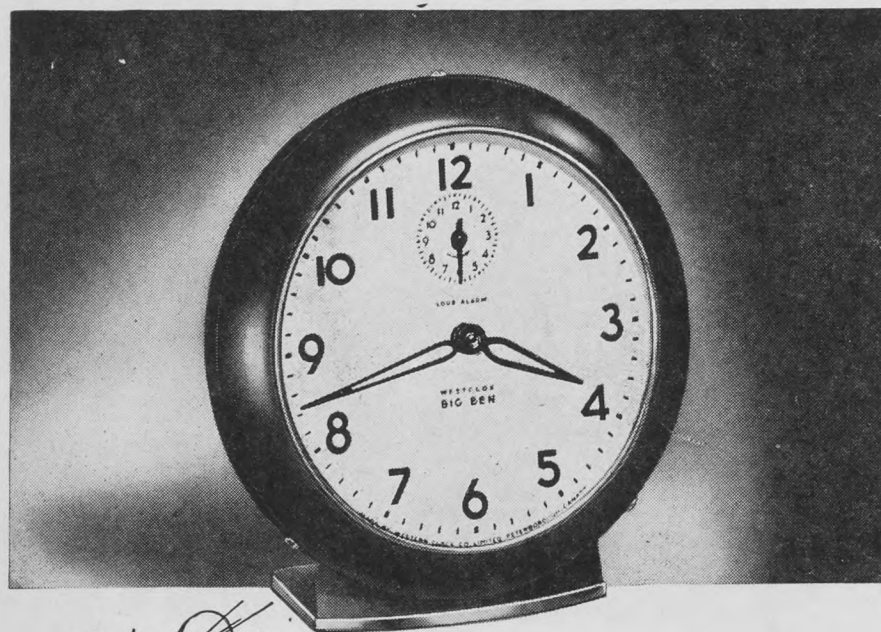
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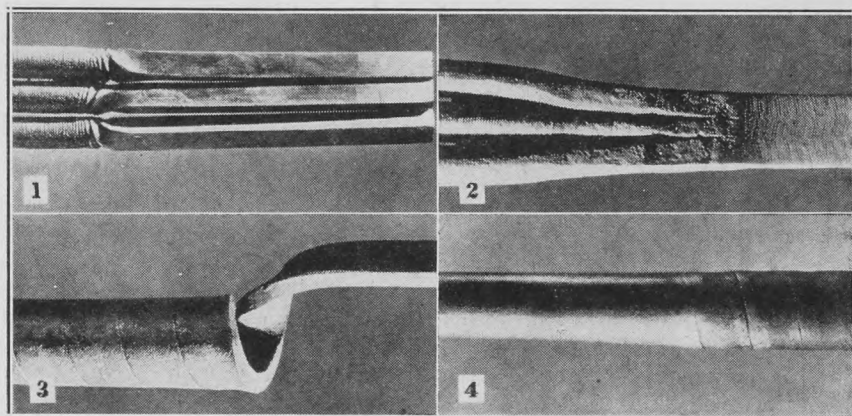
by J. W. HOULDEN

LOOK at the next Damascus steel shotgun you see hanging over a fireplace or in a collection of old guns. Admire the beauty of its lace-like patterns cut on the shiny, steel barrel, but don't try to shoot it. It might be fatal.

The attractive appearance of the Damascus shotgun is too often the cause of misplaced confidence, although it was once a useful and popular hunting weapon. Damascus

welding was completed. Such twisting was thought to impart added strength to the metal.

The metal-working industry firmly adopted the twisting theory and began to evolve the type of barrel which is known as a Damascus steel barrel. This barrel was made by taking alternate strips of iron and steel. Each strip was twisted from end to end (Fig. 1), then heated and forged into a solid bar (Fig. 2), consisting of two



The manufacture of a Damascus gun barrel. 1—Alternate strips of iron and steel are first twisted from end to end. 2—Twisted strips are heated and welded into one solid bar. 3—The twisted and forged bar is next coiled about a rod or mandrel and welded into one solid tube the diameter of the gun bore. 4—Finishing a twisted tube.

metal first came to us from the early sword makers of Damascus in eastern Europe, growing in popularity, it was almost universally adopted for shotgun barrel metal throughout continental Europe in the latter part of the 19th century.

If the above statements were purely historical there would be no further cause for concern. Unfortunately, a considerable number of these old shotguns have survived the march of time and are being used today by our present generation of sportsmen. If shot shells were still made of the same old black powder, soft shot and corrosive primer of 50 years ago, we would have no problem. But they, like almost everything else, have been improved, and therein lies the crux of the problem. In short, the modern shotgun shell is too powerful for these old shotgun barrels.

Sportsmen frequently ask the reason why. To explain, a series of photographs are shown with this article which, as far as can be ascertained, are the last authentic photographs of the various stages of construction of a Damascus steel shotgun barrel. These photographs were obtained through the courtesy of Sir Gerald Burrard, one of Great Britain's most noted authorities on shotguns and shot shells.

The first gun barrels were rough, crude affairs made of cast iron or brass. Then came a built-up barrel forged from small strips or plates of iron welded into short cylinders. The cylinders were in turn welded into a barrel of the required length.

Barrels made by twisting and welding long strips of metal around a mandrel or rod to form a tube gradually replaced the older type. The wrapping gave a "twist" appearance to the metal. Some of the barrel tubes were twisted even further after the

iron and one steel strips. By varying the number of strips and the amount of twist, the design in the finished barrel could be varied to suit the gunsmith's artistic ideas.

The twisted and forged bar was next coiled and welded around a mandrel or rod corresponding to the diameter of the gun bore (Fig. 3). This resulted in a tube (Fig. 4) or two tubes for a double barrel. The gunsmith then welded additional metal onto the breech for lugs and locks. Lastly, before being assembled, the barrel was smoothed down and finished to remove all hammer marks and irregularities from the welding.

The Damascus barrel has several weak points. The metal itself consists of a mixture of part steel and part iron which has been hand-welded together. In the twisting and forging, a considerable amount of scale and slag is incorporated into the body of the metal. These impurities weaken the iron, often to the point of danger.

TO investigate the metal more minutely, sections of a Damascus barrel have been cut out, polished, etched and placed under a microscope, magnified 50 times and photographed. Figure 5 is an enlarged view of a section of barrel metal. The inclusions of slag and scale can be seen clearly as a series of black dots in sloping rows across the face of the metal. In a Damascus barrel of poorer quality, the imperfections are larger and more scattered.

To add to this dangerous condition of imperfections in the body of the metal, another serious defect is caused by uneven welding or overheating of the metal during welding. Overheating makes the iron coarse grained and soft, changing the characteristics of the steel to weaken it below its original strength.

One fallacy about these guns has, unfortunately, been accepted for many years. Damascus barrels were said to be more elastic, with more "give" when exposed to a pressure that would burst steel. But the exact opposite is the truth. The Damascus barrel due to its soft metal and low elastic limit would bulge under even a moderate strain. Steel, on the other hand, has a very high elastic limit. If two barrels, one of Damascus steel and one of plain steel, were subjected to gradually increasing but identical pressures, the Damascus barrel would bulge first and remain bulged. A steel barrel would stand considerably more pressure without signs of permanent bulging or rupture.

Beauty is no yardstick to safety in shotguns, for to add to the inherent weaknesses of Damascus barrels two other "additions" were made to the hunter's kit at the turn of this century which helped spell doom to this type of gun. First, came the invention of smokeless powder. Up to this time, ordinary black powder was the only type used. It gave breech pressures around 6,000 pounds per square inch in shot shells. It is estimated that the tensile strength of the iron in these old barrels would run from 42,000 to 48,000 pounds per square inch. To ease the situation the peak rise in pressure when a black powder shell was fired occurred near the breech where the metal was thickest. As the shot progressed along the barrel the pressure dropped rapidly and the barrels could be very thin near the muzzle and still be safe.

Today, we have smokeless powder with minimum pressures around 9,000 pounds per square inch and the maximum going as high as 12,500 pounds in heavy 12-gauge duck loads. Gun metal must be at least twice as strong for today's smokeless loads. Modern powders are also progressive burning and there is still considerable pressure inside the barrel at 12 to 15 inches from the breech. At this point the old Damascus barrels are paper-thin and here they usually burst open.

Time and rust have also played their part. A large percentage of the existing antique guns are badly pitted. Some even have pin holes

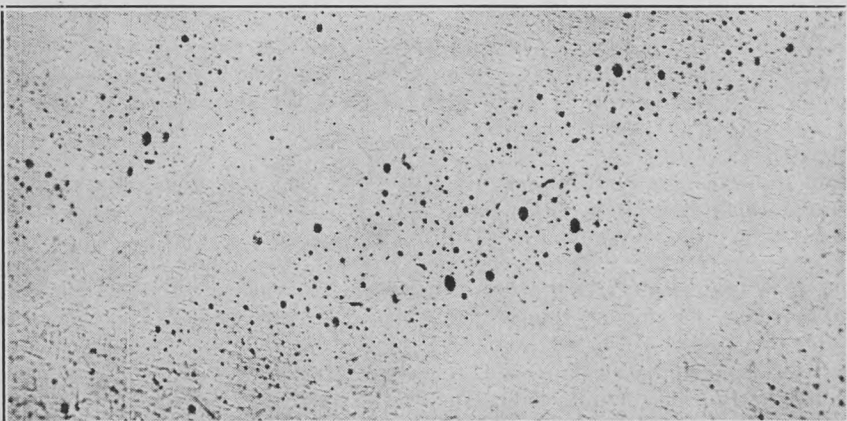
steels, until today all the best guns are fitted with steel barrels. These are made lighter than Damascus yet offer greater resistance to the heavier pressures exerted by modern powder. They do not bend or dent so easily as Damascus barrels, and trade in the latter has dwindled away until it is now exceedingly difficult to procure reliable Damascus barrels.

Damascus guns were made at a time in our history when individual craftsmanship was at its peak. Some of them are intricately forged and engraved with gold and silver inlays. This superb workmanship was costly then, as it is today, and the guns have been handed down from father to son as family heirlooms. Many are unearthed by the present generation in attics and second-hand shops. Gun enthusiasts are intrigued by the beauty and feel or balance of these old guns and can't resist giving them a try, using modern high-pressure loads.

THE result of this curiosity is sometimes unexpected, to say the least. Constant warnings have been given, yet the public, and Damascus gun owners in particular, are hard to convince. After each hunting season, reports of blown-up Damascus shotguns trickle in from all parts of the country.

The best place for these old guns is hanging over the fireplace or in the trophy cabinet with the firing pin removed. Don't sell your Damascus gun to some unsuspecting customer without warning. He may end up in a fatal accident. Better still, you should destroy the gun completely so that no one will be tempted to fire it now or in the future. Throw it into a deep river or lake and time will take care of the rest. And warn any owners whom you know about the dangers of Damascus, laminated, or twist-steel barrelled shotguns.

For extra measure you can also point out to your hunting friends the notice printed on the side of a box of shotgun shells of any make, either in Canada or the United States. The warning will read: "CAUTION—Do not use these shells in guns having DAMASCUS or other twist-steel barrels."



5—Black dots in this photograph, enlarged 50 times, show damaging scale and slag incorporated in the making of the Damascus barrel.

through the barrel, but are still being used.

Damascus steel barrels signed their own death knell as a product when gunsmiths discovered the excellent shooting qualities created by chocking the muzzle of the barrel. As their merits became better known, steel barrels gradually supplanted those of Damascus and laminated

The popularity of Damascus steel was so great in the late 1800's that a considerable number of guns with all steel barrels were etched to resemble Damascus steel. If you are not sure of your gun, ask a reliable gunsmith or your local ammunition company representative. He will be glad to help prevent these accidents.

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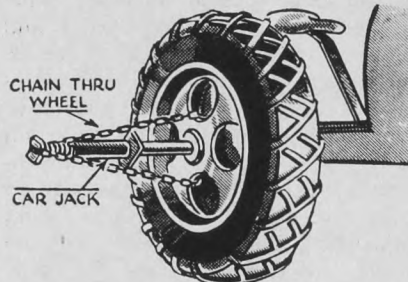
P.O. PROV.

October Workshop

Things you can do and make for fun and profit

Adjusting Tractor Tread

I find that the best tool for sliding tractor wheels on their axles is an ordinary automobile jack. To move the wheel out, place the jack against the end of the axle and loop a chain or wire around the wheel hub and over the head of the jack. The wheel



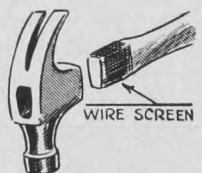
will move easily as the jack is screwed out. To decrease the tread width, pass the chain through the near wheel and around the hub of the wheel on the opposite side of the tractor, then pull it in the same manner. An alternative method is to drive the tractor alongside a large tree or post and place the jack between the tree and the wheel hub. As the jack is pumped, it will then push the wheel in on its axle. —R.O.

Wash Line Stretcher

This method of suspending a clothesline will keep the line tight at all times. Use the leaves of an old auto spring and bolt them through the center to the outside of the pole. Cut shallow notches in the leaves near their ends and wrap the lines around the notches. Tie the wires tightly enough to bend the springs until straight and the springs should have enough tension to keep the line tight. The length of the line will determine the number of leaves to use in the springs. —R.H.



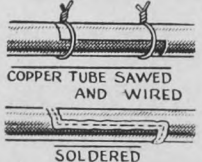
Tight Hammer Handles



Here is a very satisfactory way to secure a hammer handle so it will not work loose. Taper the handle until it will just enter the socket, then wrap the tapered part tightly with a layer of wire screening or hardware cloth. When the handle is driven into the socket the screening will bite into the wood and hold it securely. Other tools can be treated in the same way. —C.R.

Soldering Tubing

When two lengths of thin-walled tubing or conduit are to be soldered together, I find that a lap joint is much stronger than a butt joint. To make the lap joint, cut lengthwise into the center of the tubes for a depth of one inch. Make one short vertical cut in each tube and remove half of the sawn end as shown. Remove the filings and burred edges left by the saw and fit the laps closely by filing. Fasten the joint with two wire loops and solder the center portion. Remove the wires and complete the job. —H.E.F.



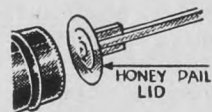
Milk Inflator Funnels

Milk inflators make the handiest possible funnels. If liquid is being poured from a barrel, hold the inflator against the bung hole; if it is being poured from a can, slip the inflator over the spout of the can and wire it on permanently. If a faucet is used on the barrel, the inflator can be used as a funnel and slipped over the nose of the faucet. You don't spill a drop with these funnels and they can be left in place for ready use. —H.J.H.



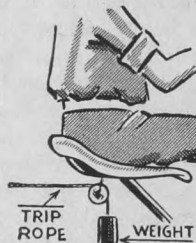
Stove Pipe Cleaner

A simple way to eliminate damage to stove and furnace pipes is to clean them with a scraper such as the one I have drawn. It avoids dinging the pipes with a stick or flaking off the galvanizing. To make the cleaner, nail the lid of a jam pail to the end of a long slat or stick. Fasten two braces to the sides of the long stick with the three ends flush. Tack the pail lid to the base of this handle and the cleaner is ready to save the lives of numerous pipes. —A.P.



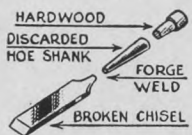
Tractor Trip Rope

This practical idea really saves time and temper during the rush seasons on the land. Hang a small pulley under the tractor seat and run the trip rope through this pulley. Hang a weight on the rope to keep it snug and prevent entanglements with the levers while turning corners. If a small snap is used on the implement end of the rope, the rope can be removed from the tractor by letting it run through the pulley. —P.G.W.



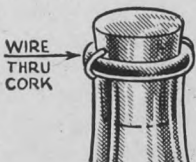
Repairing Chisel Shanks

It does not pay to repair cheap chisels but better grade tools should outlast many shanks and handles. If a shank breaks off, cut it squarely, then replace it with a shank from a discarded hoe. Weld on the new shank but be careful not to overheat the blade of the tool as heating will remove the temper. Only hardwood plugs should be used for handles. —C.R.S.



Cork Fastener

Some corks give trouble by coming loose while others are pushed down into the bottle. Both conditions can be remedied by making a hole through the cork at the top of the bottle neck and inserting a wire through this hole. Bend the ends of the wire down to hold the cork in firm position. —W.O.K.





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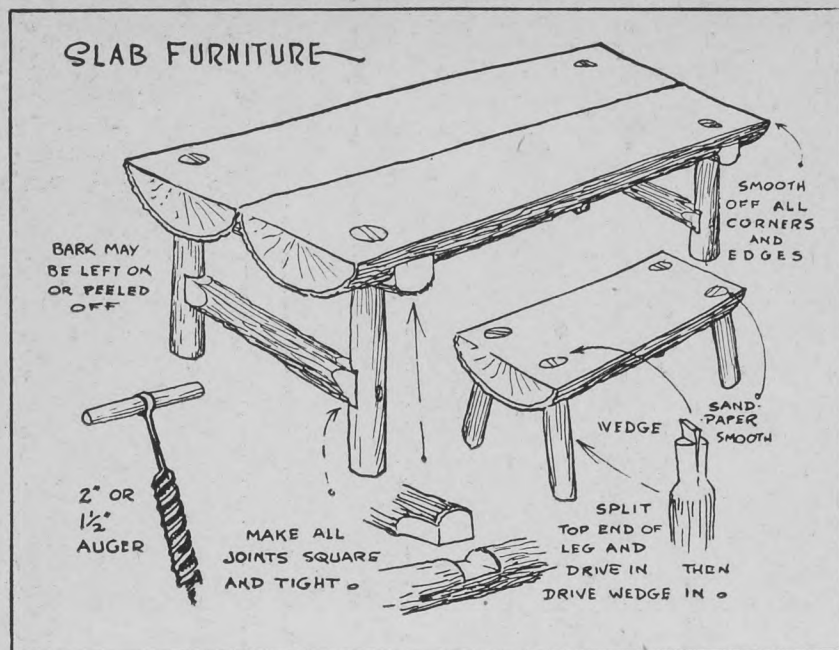
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FARM YOUNG PEOPLE



If you have some odd size lengths of 10 or 12-inch split logs or slabs around the wood pile and can borrow a 2-inch or a 1½-inch auger from Dad's tool chest, you can make some very useful log furniture, benches, stools or tables. The construction is

quite simple as the drawing shows. If they are not to be left out in the rain, the bark may be left on and the whole article varnished. Otherwise peel the bark off and then varnish, after rounding off sharp edges and corners.—C.T.

Schools for Farmers

SCHOOLS of Agriculture across the prairies will shortly be opening their doors to young farm people. These schools are located at Vermilion and Olds in Alberta, at the University of Saskatchewan, and at the University of Manitoba. Typically, the courses start around the beginning of November and end in the last days of March, thus permitting students to complete harvest operations in the fall and get back in time to clean seed before spring work.

The courses given at these institutions are of an extremely practical nature, and serve to equip young men and women to do a better job in their farming business. They include instruction in farm machinery and mechanics, field crops, animal science, entomology and other courses of practical importance to those engaged in farming. In most instances, public speaking and business English are included in the curriculum. Any farmer or farm son or daughter who has no particular plans for the next two winters would do very well to check into the possibilities of attending one of the Schools of Agriculture.

A Distinguished Record

DURING the past five years, the Haight family of Floral, Saskatchewan, has been setting the pace in junior club work in the province. All eight members of the family—which includes three sets of twins—have participated in junior club activities. In inter-club dairy and poultry competitions this family has produced three winners and two runners-up. Jean and Joyce represented the Saskatchewan Junior Dairy Club at the Toronto Royal in 1946. In 1949, Murray and Muriel placed second in inter-club dairy competitions in Saskatoon. Ruth, who was the high scorer in inter-club poultry competitions, hopes to make the grade this fall.

Further wins are possible. Three members of the family, Gail at 14, and twins, Anne and Alan at 13, are just nicely getting into active club work.

Travelling Can Teach

THE time was when the young person on the farm who managed to get 20 miles from the home place felt that he had quite a story to tell. That is no longer so in most districts, and is particularly untrue in the Neepawa district of Manitoba.

Last year a group of juniors enrolled in boys' and girls' club work in this district, went south to attend a Minnesota State Fair as guests of the 4-H clubs. They were away for a week. Apparently they liked the experience, for this year 31 juniors and leaders from the same area made up a party which travelled by bus going west, to attend the Calgary Stampede. The group was under the direction of the district agricultural representative, C. E. G. Bates.

The party was away for 11 days. Their itinerary included tours of the R.C.M.P. barracks at Regina, and visits to Banff and Lake Louise in the Rockies, the Leduc Oil Fields, the Olds and Vermilion Agricultural Schools and the well-known McIntyre and Gallagher Ranches, as well as the Dominion Experimental Farms at Indian Head, Swift Current, Lethbridge and Lacombe. On the return trip they followed a northern route and spent one night at the new School of Agriculture building at the University of Saskatchewan in Saskatoon.

Party members paid their own expenses. However, expenses were reduced by careful planning and by the co-operation of agricultural schools and others in providing accommodation. Members of the Agricultural Institute of Canada at Lethbridge acted as host to the travelling group during their overnight stay at this Alberta town.

Each member was assigned a topic on which to submit a report. Throughout the trip they paid particular attention to their subjects.

These young people in the Neepawa district are setting an example that could well be followed by club members in all parts of the prairie provinces.

"It's my best friend at haying time"

says HUBERT L. SMITH
of Wilton, Conn.

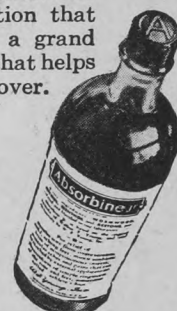


● "You can't slow down in haying season just because your tired muscles are tormenting you," says Mr. Smith. "But rub those aching muscles with famous Absorbine Jr., and man, you'll be surprised how fast the pain and soreness ease up!"

Thanks, Mr. Smith... you're right! Absorbine Jr. brings gratifying relief so fast that if you clock it, you'll be amazed. This

time-proved formula has two beneficial actions: First, it promptly cools and soothes. And it counters the irritation that causes the pain with a grand muscle-relaxing effect that helps make you feel good all over.

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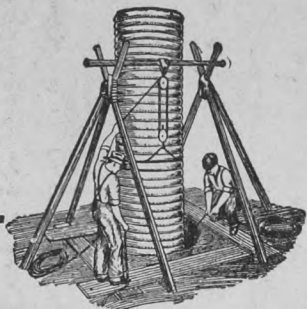
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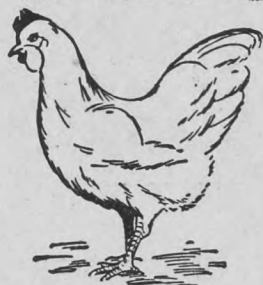
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HOW LYE CAN INCREASE YOUR POULTRY PROFITS

In no type of farming is disease such a menace to profits as in the poultry business. Yet, even today, there may be poultry farmers who do not appreciate that proper sanitation on the poultry farm is the first essential of good flock health and good profits. The most careful culling, selection, breeding and feeding are largely wasted unless proper sanitation is practised first. Fortunately, Gillett's Lye makes it an easy and inexpensive matter to clean and disinfect poultry equipment. A solution of 3 teaspoons of Gillett's to a gallon of water greatly speeds the removal of droppings and other dirt and at the same time kills many bacteria, viruses and germs harmful to poultry. The above solution should be used for all general cleaning. For a thorough half-yearly cleaning, use 6 teaspoons of Gillett's to a gallon of water. Using Gillett's Lye regularly is the most positive step you can take to protect poultry health and to guarantee good, steady profits from your flocks.



INCUBATOR SANITATION

For cleaning incubators the Ontario Department of Agriculture recommends: "Thoroughly clean out the machine, scraping from the inside, bottom and sides any adhering dirt. Scrub the interior with water to which may be added Gillett's Lye, 4 teaspoonsful to a gallon of water." (The action of the lye heats the water; use while hot.)

A WHITEWASH THAT DISINFECTS

The following, easy-to-make whitewash, prepared with Gillett's Lye, has many uses on all types of farms. It improves the appearance of barns, stables, hen houses etc. It is a good disinfectant—in fact, the disinfecting power of Gillett's Lye is actually prolonged as a result of mixing with lime. Simply mix 1 lb. of Gillett's Lye (about 1½ small tins) in 5½ gallons of water. To this solution add 2½ lbs. of water-slaked (not air-slaked) lime. Apply as ordinary whitewash.

GENERAL FARM CLEANING

Gillett's Lye has many uses in the home as well as on the farm. Excellent for cleaning tile floors; speeds and eases dish-washing, even baked-on foods are simple to remove; keeps garbage cans fresh and sanitary; cleans water closets etc. etc. Get several of the big economy tins of Gillett's Lye next time you shop and make your farm chores easier.

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ALWAYS DISSOLVE LYE IN COLD WATER — THE ACTION OF THE LYE ITSELF HEATS THE WATER

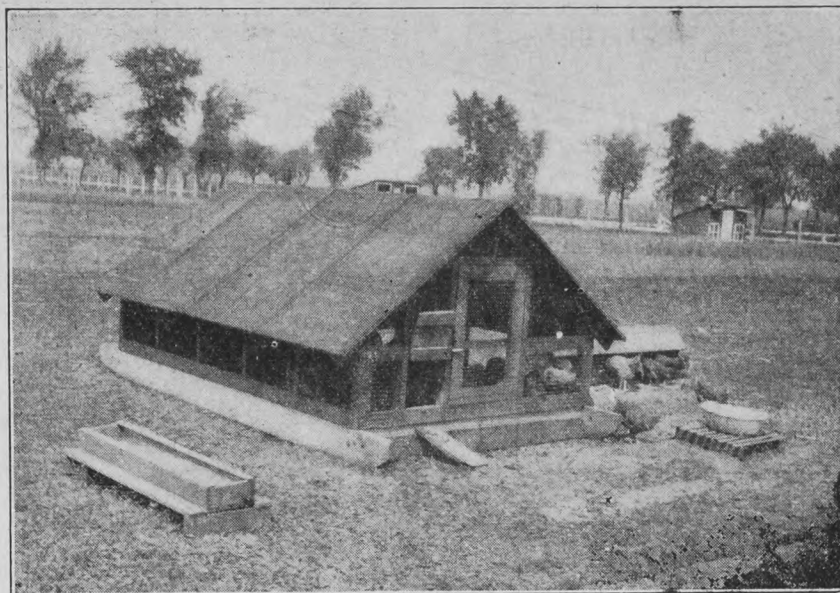
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POULTRY



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Graded Poultry

CONSUMERS are rapidly being educated to buy their poultry by grades rather than the old "pinch and poke" system. This has created an urgent need on the Canadian wholesale market for grade A birds. This situation is reflected in the market by the fact that currently buyers are paying a matter of ten cents a pound more for grade A milk fed than for grade B poultry.

The current issue of the Egg and Poultry Market Report reveals that grade A milk fed, box packed poultry over five pounds are selling on the Montreal market for 48 to 51 cents, while grade B are fetching 37 to 40 cents. The producer of top quality birds is receiving 11 cents a pound more than the second grade producer is given. The price of grade C is 27 to 30 cents which shows up a spread of 21 cents between the grade A milk fed and the grade C bird. Three years ago, prices on the same market quoted grade A milk fed at 37½ cents, grade B milk fed (this category has recently been discontinued) at 35½ cents, and grade B at 33½ cents. This serves to point up the fact that today, more than in the recent past, the large net return will go to the man who produces a good quality bird.

Experimental Brooding

EXPERIMENTS in different types of brooding are to be carried on in a new poultry brooder house recently built at the Dominion Experimental Station, Saanichton, British Columbia. The house is 18 feet wide and 40 feet long and has been divided into four pens, each 10 feet by 14 feet. It is equipped to facilitate the conducting of experiments in different methods of brooding.

A comparison is to be made of brooding with radiant heat floor panels, floor type electric brooders, elevated electric brooders, rock gas brooders, electric space heaters and radiant heat light bulbs.

The radiant heat panel will get heat from hot water pipes or from electric heat cables buried in the cement floor. Hot water will be provided by a hot water boiler, heated by oil, which can be adjusted to heat water at three different temperatures. The water is to be circulated by a centrifugal pump. In each of two pens there are 54 linear feet of three-

quarter-inch pipe, the floor panel area is 40 square feet. The floor temperature is regulated by a thermostat connected to the circulating pump.

In pen number three there is a hot panel four feet by ten feet, and the electrical cable for this area is 300 feet of plastic covered heat cable which has 1040 watts per hour capacity. The wire is laid in parallel lines 1½ inches apart, and covered with one inch of standard mix cement. The remaining floor area is not heated. In the fourth pen there is a hot panel of the same design. The remaining floor space however, is heated with electric cables of the same type, but the 500 feet of wire used will require 1750 watts per hour. The wire is spaced two inches apart which should mean that the area will have a consistently warm floor.

There is hard cement, plus two inches of zonalite cement, next to the pipe or wire beneath all heated floors. The building is of a frame construction with shiplap exterior and tar paper cover with drop siding. Interior walls and ceilings are lined with three-ply. Ventilation is by tilt-in windows and ceiling ventilation under the eaves. This house is equipped to handle standard floor type electric brooders, and also elevated brooders in which birds are raised entirely on wire or plaited screen.

Comparisons will be made on cost of fuel, rate of feathering, increase of weight, mortality and other factors of importance to poultry breeders. In this way it is hoped that some positive recommendations may subsequently be made with respect to most suitable types of brooders.

Vitamin A Important

IN many areas, and especially in the prairie short grass region, green succulent feed is not readily available in the late summer or fall. In almost all areas it is scarce by late fall. Frequently growing turkeys, relying on green feed for their source of vitamin A, are left with a diet deficient in this extremely important vitamin, with the result that their resistance is lowered, and they are more prone to certain diseases such as sinusitis, commonly called "swelled head." This disease is characterized by swelling below the eye.

It is reported by R. W. Anderson, Poultry Specialist of the Dominion Experimental Station at Swift Cur-



Use this simple, easy, economical method proved effective by years of use on thousands of poultry farms. Apply Black Leaf 40 to roosts with the handy "cap brush." Fumes rise, killing lice and feather mites, while chickens perch. One ounce treats 60 feet of roosts — 90 chickens. Packages up to 1-pound contain a "cap brush." Directions in each package.

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rent, Saskatchewan, that, particularly during drought years, large numbers of inquiries about the cause and treatment of sinusitis are received from poultry growers. Further inquiries reveal that in almost all instances the birds were subsisting on a diet consisting almost entirely of whole or ground grain, and were receiving little or no green feed.

Vitamin A is available in good quality alfalfa hay, or commercial dehydrated cereal grass may be used. Vitamin A is not a specific cure for sinusitis, but it does much toward increasing a bird's resistance to this infection. Feeders would be well advised to keep in mind that growing mashers are designed in most instances to be fed in conjunction with green feed. The practice of using grain only in the grower diet with no balanced growing mash, is apt to result in a vitamin and mineral deficiency in the growing bird. The end result can well be disease or reduced gain, or both.

Feeding Turkeys

It is a mistake to suppose that the diet of growing turkeys does not require as much planning as was used during the starting period. The requirements of rapidly growing birds for proteins, minerals and vitamins are relatively high and must be adequately provided in the ration if the birds are to develop and maintain sound bodies.

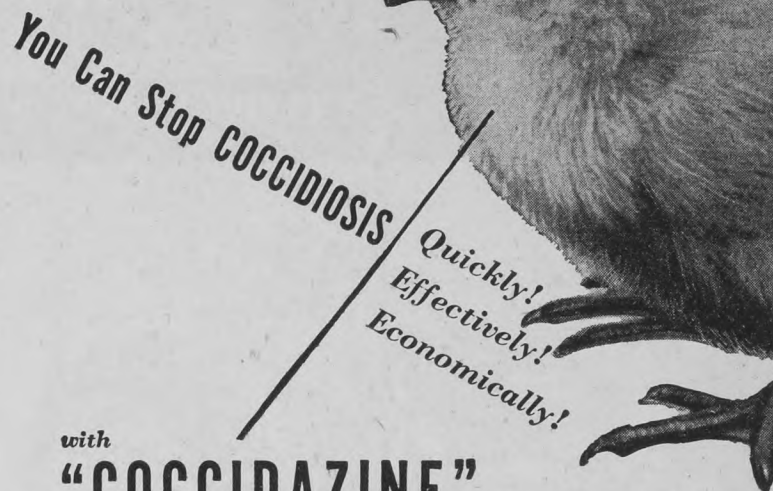
Poulters that have been too long without feed, or were weak at hatching time, may have difficulty in learning to eat and drink. In order to correct this, each poult should be given a drink and a mouthful of feed when it is placed under the hover. Whole flaked rolled oats, finely chopped greens and glass marbles scattered on the feed all help to attract the bird's attention to the feed. Added to this, numerous feeders should be scattered about under the hover so that the poults are never very far from feed.

Poulters will sometimes get in the habit of eating litter. This can be overcome by a plentiful supply of feeders, and by covering the litter for the first few days.

Caking up of the beak—pressure necrosis—is the condition in which starter mash builds up on the upper and lower beak and makes it almost impossible for the poult to eat. H. I. MacGregor, Dominion Experimental Station, Swift Current, Sask., reports that work there has indicated that this is largely a result of the cereal portion of the starter mash being ground too finely.

Dermatitis shows up as encrustations and cracking at the angles of the mouth and on the soles of the feet and, on occasion, around the eyes. It is believed to be caused by a deficiency of certain vitamin factors, and to correct it, the pullets should be ranged out, or if this is not possible, fresh, young green feed should be finely chopped and sprinkled over the mash.

Perosis—commonly known as slipped tendon—is hard to mistake as the leg from the hock down is twisted sideways, so that the bird cannot walk properly. When the disease has reached this stage there is no cure, but it is believed that the ailment is a result of too high a phosphorus content in the starter ration and a deficiency of manganese or chlorine, or both.



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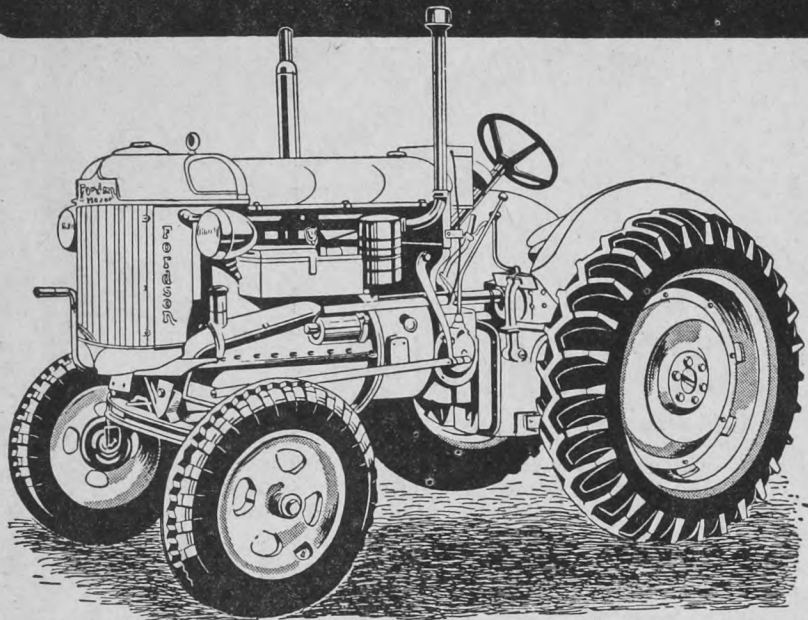
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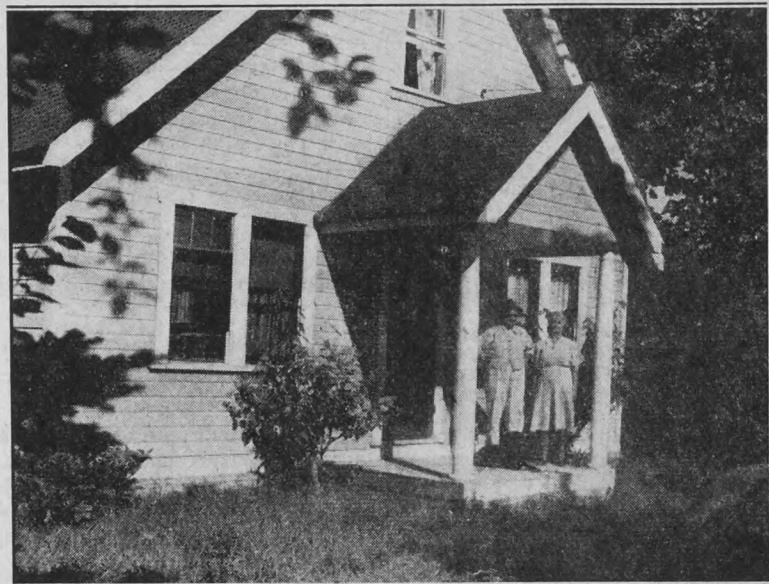
Broad Breasted

Continued from page 9

regard minute departures from it as a fatal disqualification. But the fanciers would have none of it. They abominate any bird whose description does not conform strictly to the Standard of Perfection, the poultry breeders' Bible. The consequence was that throughout the twenties they persisted in raising what Throssell calls "cheese cutters," triangular-breasted,

shown at Grand Forks, of which he was particularly proud, weighed 91 pounds for the pair. One shipped to Australia weighed 51 pounds. One of those in his yard today will reach 50 pounds come February next, and one of his hens will make 34 pounds.

Very soon the American market became his main outlet. He has shipped birds to every Canadian province except Quebec, but it was the American buyers who camped on his doorstep and took five birds for every one sold in Canada. They dubbed Thros-



Mr. and Mrs. Jesse Throssell on the porch of their well-shaded farm house. Mr. Throssell was insistent on including the statement that his wife was five-eighths of the business.

high-peaked birds with less than 35 per cent of meat on their bones, but as uniformly colored as a row of ball bearings.

THIS warfare went on for years. It hasn't completely died down yet. For many years Throssell fought it out alone. He sent birds to the premier turkey shows on this continent; to the all-American turkey show at Grand Forks, N.D., as long as it survived, and to the Pacific Northwestern, which alternated between Portland, Oregon and Seattle, Washington. Unfailingly he brought home the bacon with dressed birds, but had a rough time at first with his breeding birds in the Bronze classes because of the fanciers' passion for standard color qualifications.

From Canadians he got scant encouragement, except from Prof. E. A. Lloyd of British Columbia University, who warned coast turkey raisers that they could not forever disregard such fine commercial qualities as Throssell had bred into his turkeys. Also from G. R. Wilson, Ottawa's poultryman in their Vancouver office, who is quite aware that the man facing the Thanksgiving bird with a carving knife doesn't care what colored feathers it strutted. The Alberta breeders, in Mr. Throssell's words, "were afraid of such big birds," and to this day the prairie trade knocks off a discount for birds over 20 pounds in weight. To hear them tell it, it is because housewives can't get bigger birds in their diminutive roasting pans. "Nonsense," says Mr. Throssell, who is not a man to bend the knee. "It is nothing but a device to enable them to buy the turkey crop cheaper."

But the practical minded Americans began to pay heed to the mammoth blocks of turkey meat that walked out of Throssell's show pens. Two toms,

sell's birds the "John Bull" strain, because of a fancied resemblance between their conformation and that of the legendary Englishman. It was an apt name and he kept it. Cockeram, O'Dell and Kupetz of Oregon, and Mitchell of Washington, the biggest names on the American turkey honor roll were all customers at the little Aldergrove farm within hailing distance of the international boundary.

On occasion these big buyers would drive off with as many as 40 birds. And there was one occasion when an American breeder took 200 eggs at 50 cents a piece, from which hatch not one tom was slaughtered but 70 of them sold as breeding birds! Jesse Throssell has shipped turkeys to almost every state in the Union, and he doubts if there is today any first rate American flock without his blood in it.

This steady flow of Throssell birds across the line had a cumulative effect on American stock. By 1938, says H. P. Griffin, an American authority writing in the American Turkey World, there were not enough standard bred Bronze birds to fill the classes at the Seattle show. The doors had to be opened to the new strain which had long since dominated the dressed carcass classes. Now, for the first time, the strain was designated as the Broad Breasted Bronze, for the former designation of "John Bull" seemed to require some amendment from an American viewpoint.

The Americans consider that they were entitled to change the name of the strain as they too had contributed something. They believed that they had been more successful than Mr. Throssell up to that time in combining standard color and conformation. That is a debatable point, but the new name stuck.

Whatever may be the truth in that respect, Throssell has something to

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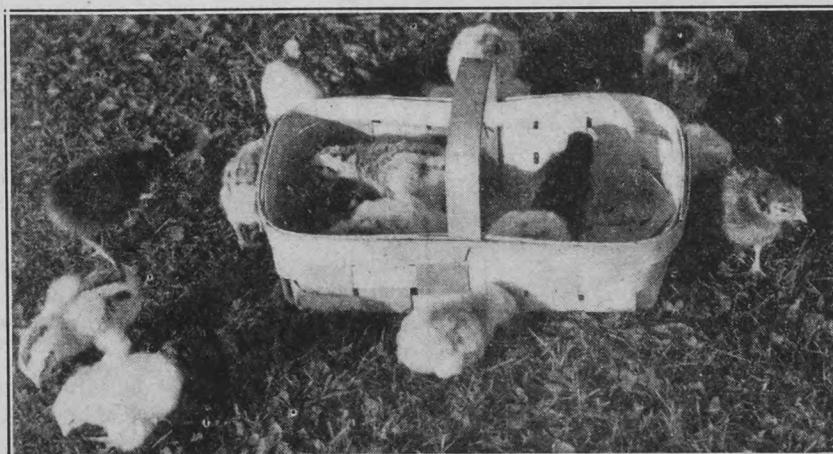


learn from them about making money. While he has paid as much as \$500 for a single bird, he was entirely too diffident about charging others what they were worth. He has never asked a customer more than \$50 for a tom, and frequently he has seen birds of his raising change hands across the line at advanced prices. Others have made fortunes out of his birds. Writing with evident restraint, an American poultry historian has declared that "it is unfortunate that Mr. Throssell has not had greater benefits from the revolution that his birds created." It is quite apparent that his smart American customers saw something of the same quality in Jesse Throssell that the London policeman saw outside the gates at Hyde Park Corner.

It should be recorded here that in his early days at Aldergrove Mr. Throssell bred White Hollands as well as Bronze turkeys, and still has a high regard for them. Some of the heaviest birds he ever exhibited were of that breed, and one of his most treasured trophies is a plaque for the best pen of 15 at the All-American, which he won with White Hollands. But he gave the breed up regretfully because he found that it was necessary to segregate them from the Bronze toms if they were to be kept constantly in the presentable condition a breeder of pure livestock must maintain.

THE depression wrote another important page in his book. Like many another he was tempted to expand at the end of the golden twenties. He bought another farm, almost on the border. It amused him to discover that the American customs officers, aware of his big export business, had some suspicions as to the purpose behind this purchase. They could have saved themselves the trouble. The depression looked after that. In order to weather the storm, Mr. Throssell took his flock then numbering about 2,000 to the Nicola Valley. He calculated that lower operation costs and increased numbers could be made to offset the ruinously low price for breeding stock.

It was a valiant effort, but not an unqualified success. When he first went to this interior point, with an entirely different environment, his birds feasted on grasshoppers without moving off the grounds. Before he left he was herding them horseback six miles daily in order to get their jumping protein. But the constant sunshine and dry verdure made him enthusiastic about the prairies as the right place for raising turkeys. Looking at today's terrific feed prices, he recalls sadly that in his Nicola days he used to be able to raise a bird to maturity for 75 cents.



Sticking close to their temporary home.

Anyone with even a casual knowledge of a purebred enterprise knows that breeding is only half the game. The ability to combine blood lines to reach new levels of excellence will never get a breeder to first base by itself. He must build on a foundation of good feeding and animal management. Jesse Throssell got his education before all that learned stuff about proteins and vitamins became popular jargon. But he beat the nutritionists to the punch in a practical way. He fed brewers' yeast and malt sprouts in the days when they could be bought by the four-bushel sack. Now they are made into pills for ailing humans and their vital content measured in milligrams. While the perplexed pros played with proteins, Throssell cruised along the edge of his bush and knocked over a couple of rabbits every evening for his poult to devour.

In these days of high feed costs, Mr. Throssell falls back on the lessons that came out of his experience. Shorts and middlings provide the bulk of his home-made mixture. I discovered that he avoids barley like the plague. "Did you ever see turkeys on barley stubble," he asks, "if they can get access to any other?"

In his declining years, this dean of the turkey world has cut down his activities drastically, and threatens to give it up altogether next year. He can do so with a good conscience. His work has been well done. The Canadians who were afraid of his heavy fleshed birds a quarter of a century ago have been buying them back from the Americans in such numbers that it is estimated that 85 per cent of the flocks west of the Ottawa have more or less Broad Breasted blood in them.

In view of that change Mr. Throssell deprecates importing turkey stock from the United States. It is now possible, he says, to buy anything you are likely to get from the States right here in Canada. Furthermore, importing poultry enormously increases the disease risk.

The poultry textbooks declare that the dressing percentage of the Broad Breasted Bronze turkey runs about 43 per cent of the body weight, a considerable advance over the old type of standard Bronze. Nobody can doubt that a characteristic of such high economic importance is bound to win out. The old high-peaked bird will go the same way as the long-legged Bates Shorthorn, and the over-scale Herefords which came out of the valleys of the Severn and the Wye a century ago. And for the same reason. The enlightened breeder of commercial birds will insist on the type which produces the most edible meat for a given volume of feed. And his thanks should go to Jesse Throssell of Winbush Farm.



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says Martin Paul of Pewee Valley, Kentucky



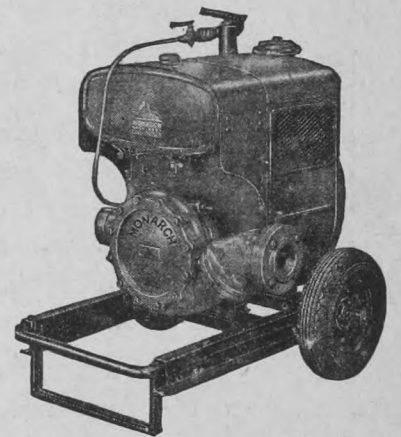
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MONTHLY

U.G.G. Directors Urge Increase In Initial Payments on Wheat, and Prompt Payment on Wheat Board Participation Certificates

The pressing need of many thousands of western farmers for more money than is immediately available from the proceeds of the limited volume of grain they are yet able to market, at the low initial payments available, especially on lower grades, was recognized by the Board of Directors of United Grain Growers Limited in a statement made public on September 23. It urged an all-round increase of not less than 15 cents per bushel in the initial payment on wheat of this year's crop and also an immediate settlement by the Wheat Board in respect to grain deliveries of past years. The statement was as follows:

"Because of present financial needs of a great percentage of farmers it is important that the Wheat Board should pay out as soon as possible the tens of millions of dollars which it is now holding representing remaining proceeds from sale of wheat in the five-year pool which was closed on July 31 and from the marketing of oats and barley during 1949-50.

"To make immediate payment possible we urge that Wheat Board accounts in respect of such grain be closed at once by transferring to the government at current market prices all old crop grain remaining on hand. The government should assume the limited risk of loss on subsequent sale, and no such loss should be transferred in Wheat Board accounts, to farmers delivering grain during the current crop year.

"We repeat our former recommendation that the government, in making settlement on the five-year pool of wheat, supplement the amount available in the hands of the Wheat Board by a substantial addition, in recognition of the extent to which the income of wheat farmers during those years was limited by government policy and by losses imposed upon them under the four-year wheat contract with the United Kingdom.

"Further, we urge the Wheat Board and the government to increase substantially the scale of initial payments by the Wheat Board on wheat deliveries of the current year's crop, by not less than 15 cents per bushel on all grades. Present payments are much lower than those of last year, and were set so as to give a very wide margin of security to the government and to transfer all cost of carrying risk of price changes to farmers. Had earlier crop prospects materialized the present scale of payments would have been tolerable. Now with the crop damage done by frost, the margin of security to the government is unnecessarily and unreasonably large. The government has now assumed such a wide degree of responsibility for crop marketing, that in a year such as this it is amply justified in carrying some degree of risk.

"Present financial difficulties of farmers arise from several sources. Enormous losses were suffered in reduction of yield and lowering of

grades as the result of August frosts, which constituted one of the most costly national calamities ever suffered by Canada. Under present quota restrictions upon deliveries farmers can market only limited quantities of grain. In many cases, even if they could deliver all their grain initial payments thereon at the low initial prices for low grade wheat would in many cases fall short of production costs, much higher this year than in former years. Difficulties arising in respect of this year's crop are aggravated by delay in settlement for past deliveries and also by price restrictions imposed in earlier years upon grain farmers.

"Additional payments such as suggested in respect of the current crop and past deliveries are urgently needed, and if made will go a long way in improving the financial position of farmers and the whole economy of the country."

New Rust Danger

Calling for intensified efforts to meet the new rust threat, the Board of Directors of United Grain Growers Limited in September adopted the following statement for transmission to the Government of Canada:

"Attention of the Government of Canada is called to a new threat of future damage to western grain crops by the increasing spread in the United States of races of stem rust, to which varieties of grain now grown are not immune. Evidence accumulates of a dangerous increase in certain races of rust, the most important apparently being that identified as 15B. Little known as yet in Canada, it is now so widely scattered south of the border as to make quite possible, under certain weather conditions, an invasion of this country which could be highly destructive. The situation calls for intensification of rust studies and of plant breeding to produce varieties of grain resistant to the new rust.

"Tribute is due to past efforts in this direction which produced grain varieties resistant to types of rust which formerly constituted a potential danger over wide areas of western Canada. The growing of those varieties has resulted in the production of hundreds of million dollars worth of grain which otherwise would not have been available and the cost of scientific work which made this possible is the merest trifle compared with the results achieved. Quite evidently past work in this connection must be continued and expanded to keep ahead of new menaces to crops, and to conserve the benefits of past work."

Grain Deliveries and Shipments

Severe quota restrictions on grain deliveries were imposed by the Canadian Wheat Board at the beginning of the present crop year, at all points in the West. These have now been relaxed at a considerable number of points, mainly where crops were comparatively light, so that 10, 12 or 15 bushels per seeded acre may be delivered, and at some points quota restrictions have been entirely lifted.

At the majority of points delivery conditions are probably going to be difficult for a long time. To begin

COMMENTARY

with, the export sale of grain is going to be slow, due to difficulties in markets overseas. Then, although markets may be found in due course for the carryover of last year's crop, and the limited quantities of No. 1 Northern, No. 2 Northern and No. 3 Northern available from this year's crop, the disposition of wheat grading No. 4 Northern and lower is likely to be slow indeed.

Railway shipments from country points are at a much lower rate than deliveries of grain. All over this continent there is an urgent demand for box cars for various types of business, and this has been accelerated during recent weeks by the increase in manufacture of supplies for war purposes. General business is at a very high level, and the construction of new box cars for the railways has not kept pace, during the past few years, either with the gross in business activity or with the retirement of worn out equipment. Ordinary difficulties arising from that source have been increased by the lack of railway activity during the strike period. It has taken the railways a long time to catch up with the backlog of demand for shipment which was occasioned during the days of idleness. Shipping difficulties have been activated this year by the delay in harvest, particularly in Manitoba. During the past few years the railways by concentrating cars in that province have been able to get a great deal of grain forward to the lakehead before the demand for cars became heavy either in Saskatchewan or Alberta.

Elevator space problems are increased this year by the multitude of grades produced. When it is necessary to assign many different bins to different grades, space cannot be used as efficiently as when the crop is uniformly of high grade. Then too at many elevator points it has not been practicable to bring annexes into full use. Before grain can be put away in annexes, to be held presumably for a long time in storage, it is necessary to be sure that only sound and dry grain is available for such storage. Further difficulties are experienced in Alberta because the present demand for shipment out of Vancouver is comparatively light, as against a fairly heavy demand which prevailed not long ago.

As one means of coping with the situation the Canadian Wheat Board has ordered shipment of wheat grading 5, 6 and feed to interior terminal elevators at Edmonton, Calgary, Lethbridge, Saskatoon and Moose Jaw. Low grade grain from points further west can be shipped to such points within a short space of time, and the box cars made available for turn around and re-use.

Poor Wheat Outturn in United Kingdom

Disastrous damage to the English wheat crop is reported as the result of the very rainy season, continuing right up to harvesting time. Much of it has been lodged, or to use the English term "laid." It is feared that a large part of the crop cannot be recovered, and that the grain threshed will carry excessive moisture and be very difficult to keep.

While in Canada drought usually constitutes the principal danger to a wheat crop, the reverse condition prevails in England and indeed over much of the continent of Europe. There, excessive rainfall, particularly at harvest time, constitutes the most important threat.

Since the beginning of the last war, when Great Britain began expanding wheat acreage to reduce reliance upon imports, favorable seasons have been the rule, and very large crops have been harvested. But in the southern and central counties of England, where farmers were forced by government regulation to turn grassland into crops, they have continuously been in fear of such a season as has now been experienced. It is quite possible that in future years the experience of this year will be a deterrent to continuing large wheat acreage, and that there may be a reversion to pastoral agriculture. British import needs for wheat will be increased this year, but so far as that applies to milling, the tendency will be to draw wheat rather from Australia than from Canada, as the wheat which will need to be replaced is of the soft, white varieties grown in England and also in Australia. A very large part of English wheat production goes for the feeding of poultry, and a deficiency in that supply may create an opening for the sale of feed wheat, so abundant in Canada this year.

US. Corn Crop Late and in Danger

Much anxiety prevails in the United States about the outlook for the corn crop. On the whole it has been about three weeks later than usual, and although recent estimates by the government put the outturn at over three billion, one hundred million bushels many observers now feel that it is likely to fall well below the three billion level. In addition it is feared that a good deal of the crop may be damaged by frost, and on that account be soft and not suitable for storage for any great length of time. Plans are already being made to keep in continued storage the carryover of old crop of corn, and to encourage farmers to feed the new crop as rapidly as possible, to get it used up before deterioration.

For several years the United States has had abundant supplies of feed grains. Now it is beginning to be thought that it may be necessary to call on imports of grain from Canada for feed purposes, and dealers south of the border are considering the possibility of extensive imports of feed wheat from Canada.

Under United States law imports of milling wheat are restricted, both by a high duty and by rigorously limited quotas. Wheat considered unfit for human consumption, however, is admitted without quota restrictions and at a comparatively low rate of duty. Milling standards in the United States are high, and Canadian wheat grading No. 6, as well as feed wheat, is usually considered to fall into the category of "unfit for human consumption." Indeed it is quite possible for No. 5 to be so classed.



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says MRS. ETHEL LARSEN

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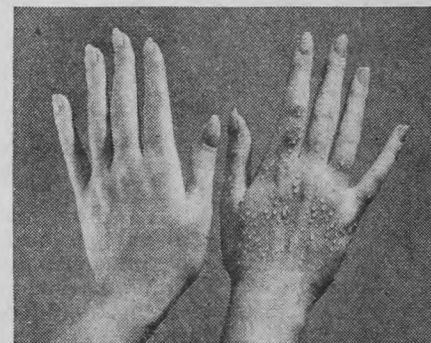
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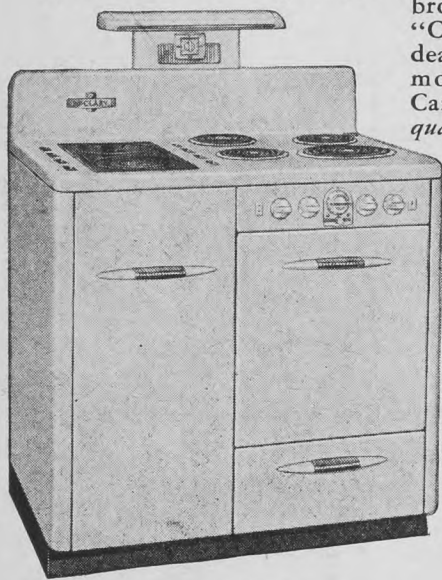


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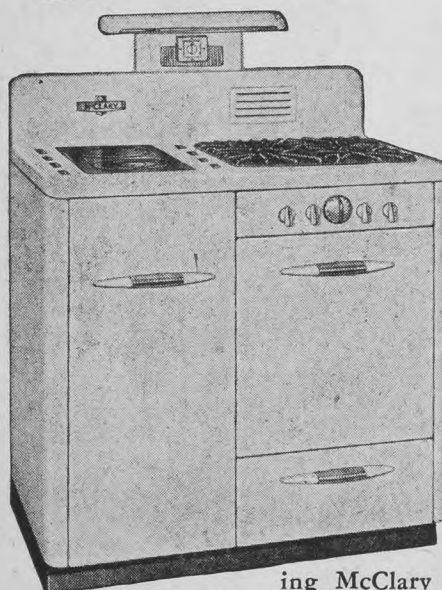
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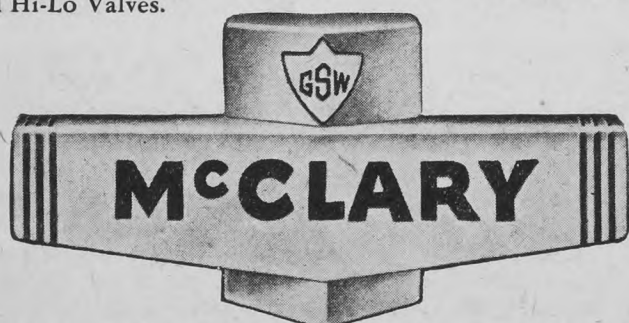
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Pasture Pattern for Communities

A model project set up by Saskatchewan's Lands Branch

by J. T. EWING

NONE of the lands in the 4,720-acre Regina Beach community pasture should ever have been used for growing grain crops. Most of it was cropped for several years, however, and nearly all of the original topsoil now is "gone with the wind." Now not much is left but coarse sand, which is not a very desirable seed bed, even for grass and clover.

During a recent visit to the pasture with Fred Snell of the Lands Branch, I saw where they have been able to get a good catch of grass and alfalfa on some of the poorest of this soil. More of this land is scheduled for regrassing this fall.

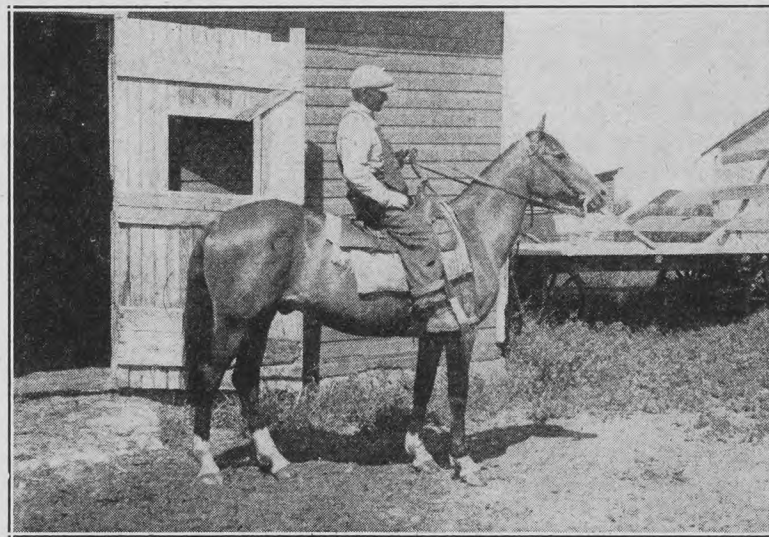
"Studies at the Swift Current Experimental Station have shown that regrassing increases the carrying capacity of native pastures three to five times," Mr. Snell said. "Much of this land, which never had been broken, had been severely overgrazed before

Several alternatives have been suggested. One idea that is being tried this year in one or two pastures is to rent bulls from private owners for the breeding season.

Another alternative is to increase the breeding fee, possibly to \$5.00 or \$6.00. As the officials have been keeping fees in line with P.F.R.A. charges, this suggestion is not too practicable at present.

It is believed, however, that the most equitable way of computing breeding fees would be on the basis of the price of beef on the open market. This is the basis on which grazing leases are awarded.

Because of its small size the caretaker of the Regina Beach pasture, Wm. Sinclair, is on a part time basis only. A canny Scot who has lived and prospered in this district for many years, he has always recognized the



Wm. Sinclair, the pasture manager, on his favorite mount.

we took it over. On some of it the native grasses are coming back nicely since we have controlled the grazing. For the present, anyhow, we won't regrass this land."

Cattle numbers have been severely restricted in this pasture to give the grass every chance to grow. Only about 200 head are being pastured this summer. This policy, with the good growth induced by this season's favorable moisture conditions, is expected to make possible a doubling of the carrying capacity next year.

Grazing fees for all ages of cattle and for cows with calves at side is 75 cents per month. Fee for a female in the breeding pasture is an additional \$2.00 for the season.

Department officials are not satisfied with this breeding fee because it does not provide an adequate return on the investment in the bulls. They cost the department about \$350 each and are used in the pastures for four years.

AT the \$2.00 service charge the maximum revenue from them each year is \$70.00 (35 cows to each bull). During 10 months of the year they must be boarded out with some nearby farmer. This costs \$1.50 a day.

They have to figure on selling the bulls at about \$200 less than they cost, so you don't have to be good at figures to see that the government is losing money on its pasture bulls.

soil's limitations and never has gone in for grain farming to any extent.

He has at present about 20 head of cattle, including young stock. He milks a few cows and ships milk to Regina. He leases some land for pasture so has no stock in the community pasture. Before the pasture was built Mr. Sinclair had some land leased which is now included in the pasture. It is a tribute to him that none of that land was overgrazed.

MR. SNELL and I also visited one of the patrons of the pasture, J. T. Black, who has 31 cattle in the pasture. The other 12 patrons each has from eight to 30 head or an average of about 16.

Mr. Black has one and three-quarter sections of land and does some grain farming. He has about 20 head of cattle which are not in the pasture but says that he is able to keep a much larger herd because the community pasture is available.

There was considerable opposition when it was first proposed to build the pasture. Local farmers were afraid that cattle from other areas might be accepted. The policy, however, has been to admit only cattle owned by farmers who live near the pasture. The farmer who lives farthest away is only six miles from the pasture. So now the local men are boosters of the project.

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Science for Spuds

Continued from page 8

becomes noticeable. Thirty years ago our knowledge was much less than it is today; but, notwithstanding this, a combination of enthusiastic growers, the work of plant pathologists and the effectiveness of the new Potato Inspection Service produced the first carlot of certified seed potatoes from Prince Edward Island by 1919. Three years later more than 3,600 acres of potatoes were certified. In those early days standards for certification were not as severe as they are today. A tolerance of five per cent of virus diseases, the same of foreign varieties, and seven per cent of blackleg and wilts was permitted. For several years, however, previous to June of this year, only two per cent of any one virus disease was permitted on first field inspection, and no more than one per cent on second field inspection. In June, this small percentage was reduced to one per cent of any one virus disease on the first inspection and .5 per cent on the second inspection. Today, the total of all virus diseases allowed in certified seed is no more than two per cent on first inspection and one per cent on second inspection. And we have it on the authority of W. M. Keenan, Chief Division of Plant Protection, Department of Agriculture, Ottawa, that over the past two years over 90 per cent of the potato fields planted in Canada came within the new standards.

It was in 1933 that the potato breeding program was organized. It was a program largely for the breeding of disease-resistant potatoes, especially those resistant to mild mosaic and late blight. In 1937 there was an epidemic of leaf roll, and it became necessary to add to the program the breeding of types and varieties resistant to this disease, also caused by a virus. Later, work in connection with bacterial ring rot and Verticillium wilt entered the picture. From the first, attention has been paid to the common potato scab, which is even more troublesome in Ontario and parts of western Canada than in the Maritimes. In the Maritime provinces, however, potato soils are likely to be fairly acid, necessitating the addition of large quantities of lime, sometimes in the form of mussel mud, containing large quantities of shells. This creates an alkaline condition in the soil occasionally, which is favorable to the scab organism.

To date it is calculated that the Potato Breeding Program, which for some years now has attained the status of a national project, has produced and tested about 165,000 seedlings bred for special purposes. These include 35,000 bred for mosaic resistance, 91,000 for late blight resistance, 26,000 for common scab resistance, 5,000 for combined scab and blight resistance, 1,000 for resistance to leaf roll, 3,500 for resistance to aphids, which are the active agents in transmitting the virus diseases from plant to plant, and an additional 3,500 seedlings bred for miscellaneous purposes.

The project involves the co-operation of several of its experimental farms, several Federal laboratories of entomology and plant pathology, and a number of the universities across

Canada, including the University of Manitoba. The plant pathologists at Kentville (N.S.), Fredericton (N.B.) and Charlottetown (P.E.I.) are interested primarily in the diseases, and not in the crop. Therefore, they give their attention primarily to sprays and dusts, materials which will kill the tops of plants, and to seed and soil treatments for disease control. At Charlottetown a special study is made of epidemics (epidemiology) of late blight, and the life history and control of Verticillium wilt. At Fredericton, Dr. D. J. MacLeod, in charge of the laboratory, specializes in virus research, and this laboratory also devotes special attention to the late blight and common scab organisms. At Kentville, extensive spraying and dusting experiments are carried on. At Woodstock, N.B., a field station was established in 1946 for the special purpose of studying the life history and control of insect vectors (carriers, conveyors), and the entomologists at this station are responsible for determining the degree of resistance to aphids, shown by seedlings bred for the purpose. Since virus diseases are found in the juices of plants and because aphids are sucking insects, they are admirably equipped to transmit diseases of this type. Their control and eradication, if possible, is therefore highly desirable, as is the breeding of types resistant to their destructive efforts.

I was given the opportunity in June of visiting the Experimental Station at Fredericton and of learning some of the details of the potato breeding program. I saw not only S. A. Hilton, superintendent of the station, but had the benefit of an extended talk with Dr. MacLeod and later of visiting the Seedling Testing Station at Alma under the tutelage of L. C. Young, horticulturist. Dr. MacLeod explained that the experimental station was responsible for growing the potatoes, selecting the varieties, making the necessary crosses between varieties, and of growing the resulting seedlings during their entire period of testing. The entomologists and the pathologists then get these varieties or seedlings for disease testing. Work at Fredericton relating to scab, ring rot, or late blight, is turned over to L. J. Howatt, while Dr. MacLeod himself handles the virus diseases. Aside from field observations, a great deal of the disease work is done on plants grown in the greenhouses. These, for the most part, are started from seed in



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January, and fair-sized tubers may be secured by April. Often it takes two years to grow full-sized tubers, but occasionally these are secured within a year.

DR. MacLEOD told me that most potatoes in North America carry two viruses. Some viruses are latent (inactive), and these do not have any apparent effect on the crop. Such varieties, for example, as Green Mountain and Irish Cobbler have consistently carried these latent virus diseases for more than 70 years, and yet the varieties stand up today under normal conditions and rate as excellent for commercial production. There are varieties which do not carry these latent viruses, and this is all to the good, because if a strong strain of latent virus appears it may affect the plants and injure them.

As many as six strains of latent virus are known; two of them weak, two medium and two strong. Curiously enough, the infection of a new variety by a weak strain of a latent virus actually immunizes that infected variety permanently against any stronger strain. This is apparently what has happened with the Green Mountain variety, which carries a weak strain, and having done so for many years it is, in practice, immunized against stronger strains. In the greenhouse, plants under test for resistance to a disease are infected with this disease. Viruses may be introduced into plants by putting aphids upon them when the seedlings are about six inches high. After a week the aphids are killed by spraying. The potato also may be infected with a

virus disease by grafting, on a virus-free plant, a piece of plant carrying the virus disease.

Not only is this type of thing done but practically all plants are tested by methods which are really quite severe. What is called the chamber test is applied. Here, advantage is taken of the fact that, in nature, most living things prefer more or less specific combinations of temperature and humidity. The chamber test is merely a test made within a room or chamber in which temperature and humidity can be accurately controlled. Thus, if a plant is subjected to conditions most favorable for the development of an insect or a serious disease, and is still resistant to that enemy, its resistance under commercial production is more certain than if less exact methods of testing were followed.

ONCE the scientist has given assurance that a seedling warrants further testing, it is then tested for a number of years at Alma. The special advantage of Alma, for testing potato seedlings, is that it is located in a national park and the area is free of aphids for all practical purposes. Absence of aphids enables a more accurate check on resistance of the seedlings to other than virus diseases, such as late blight, scab and ring rot.

Potatoes are unlike wheat and other storable products, in that complete new stocks have to be grown every year. Moreover, tests must be made for every characteristic, and stocks showing each characteristic, whether it be disease resistance or susceptibility, or particular varietal characteristics, must be reproduced each year

for a number of years, because the weather and general conditions one year may differ markedly from those of another. Thus, the Alma Station with its isolation from other potato-growing areas, its freedom from aphids, its relatively low temperature and high humidity, plays a very important part in the potato breeding program. After the first year, tubers produced in the greenhouse and grown at Alma may yield, perhaps, one out of 10 worthy of propagation the following year. There may be 10 hills possible the second year from each hill selected the first year. Thus, I saw at Alma 434 ten-hill plots being tested for scab resistance. The third year it may be practicable to plant a 75-hill unit, and the fourth year 200 hills. At this stage the seedling may remain for several years. After the seedling has been in the 200-hill stage for about three years, it is tested at two or three other places.

This fall, two blight-resistant seedlings are being named and will be available to the trade next year. This does not mean that these new varieties will be resistant to all other diseases, or that they will be equally satisfactory in all parts of Canada. It happens that these two seedlings seem particularly adapted to the Maritime provinces, and are blight-resistant. It happens in this case, too, that the blight resistance was secured from a small, distant relative of the potato found in Mexico (*Solanum demissum*). This plant, though carrying 70 chromosomes as compared with 48 in the potato, would cross, and was mated with such varieties as Green

Mountain and Katahdin. The progeny was then backcrossed on the better varieties and, though backcrossed 10 times, is still holding its resistance to late blight.

It so happens that when scab resistance was added to the breeding program it was found that certain European varieties, such as Hindenburg, Arnica and Jubel, possessed some scab resistance, though they were not acceptable for commercial production. They were also found to carry resistance to two viruses; one, a mild mosaic and, one latent, with the result that this virus resistance has been incorporated into the new late blight-resistant varieties to be named this fall.

THUS, after this fashion, science has come to the aid of mankind once more, this time operating through the humble potato. Once again, it is being demonstrated that modern science moves to its attack on a problem, more or less as an army, the success of which depends on the effective co-ordination of many different branches of the service. As an adversary, nature is resourceful, wily, and is always able to toss a few unknown factors into a battle situation. Knowing nothing and caring less for fair play, she is deceitful and unscrupulous at will. Dedicated only to the processes of birth, growth and decay, she acknowledges no restraint on her methods. Therefore, the scientist's job is not easy. No single individual can hope to wrestle successfully with nature. That is why we needed to have, and do have, a national potato breeding program.

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Power for Okanagan

Continued from page 10

do the work at the right time, and whose charges were not low. Only the large growers could afford an outfit of their own.

What the Okanagan needed was a spray machine small enough to be handled by the ordinary light tractor which most farmers possessed, and which did not require extra men to work. When the war brought new, more efficient insecticides like DDT, Dr. James Marshall and his assistants at the Dominion Entomological laboratory in Summerland, saw a gleam of hope, and dived into developing a machine that would apply them mechanically.

Their idea was that these new insecticides could be applied in a concentrated atomized form instead of as diluted liquids, thus cutting down on the size of tank required; and that a powerful air blast could carry this atomized concentrate to the tops of the highest trees.

RESULT of their experiments was the amazing little Turbo-Mist sprayer, now being commercially manufactured and also copied by rival companies. Small and compact, it used only 75 gallons of liquid spray to cover an acre of trees instead of the 1,000 gallons of the old type, and an air blast whooshing out of its fish-tail rear at nearly 100 miles an hour spread it in one-quarter the time.

A light tractor can pull it and the tractor driver can run it himself with no extra men. More, the concentrated DDT sprays have proven so effective that only three of them per season are now required, in most years, instead of the former six. So the saving of time and money here is enormous; already a good 50 per cent of Okanagan farmers have switched to the new machines, and in a very few years the hand operated spray gun may be taking its place in the Okanagan's museum along with open ditch irrigation.

So the fruit grower has a lot more time to give to his main summer jobs of thinning and picking, and now even some of these are having some of the hand work eliminated. Thinning, for instance, had always been accepted as hand-and-ladder work. Fruit "sets," as it blossoms, in clusters; and as soon as the little apples and pears are over half-an-inch across, fruit growers have always gone carefully over every tree picking off all but one of every cluster, or even more, so that no more would be left on the tree than would "size up" to requirements by fall. It is slow, tiresome work, requiring almost as much time as the fall picking. Extra labor has to be hired, there-

fore; yet there is a gap of two months or so between thinning and picking, so that unless a grower has soft-fruit picking to fill in that time with, he often has trouble getting men to work for just the thinning season, and sometimes has to work outlandish hours himself in consequence.

"And always will," old timers grumbled. "How'll they ever get a machine to climb ladders and select what fruit to pull off and what to leave?"

Never, perhaps; but the fruit doesn't have to be pulled off, and it doesn't have to be done in June. About 1939 an American named Gardener, having noticed how certain spray materials burn fruit blossoms and also how all the blossoms in a cluster do not come out at once, combined the two and came up with an idea. Why not spray the trees when only one or two blossoms in each cluster had been fertilized and "set," with a chemical that would kill all the rest?

He tried this birth control of blossoms and it worked. Gradually his idea spread over the fruit growing areas of the United States, and now it is coming into the Okanagan. So far it is not wholly satisfactory to Canadian growers, though it receives much praise from south of the border. The timing has to be just right; the powerful chemical spray used, Elgetol, can burn the foliage, and the whole process is a severe shock for any tree that is not in good shape. Most growers who have used it find that there is still a good deal of hand-thinning to be done.

Nevertheless, it is appreciably lessened, and the Okanagan is keenly interested in it. Growers like the idea of thinning from the seat of a sprayer-towing tractor instead of climbing up and down a ladder all day.

Unfortunately, no one has yet developed a spray material which will pick apples off the tree when they are ripe. They have a hormone solution that will make them stay on better in case of wind, but that is a different story. And even if means were devised for dropping the apples, how to keep them from the bruising which at once spoils their commercial value? Human fruit pickers have to acquire a velvety touch as well as speed; and so far no one has thought up a new machine to learn these old tricks.

MUCH the same applies to the winter job of pruning. It is too selective to be entrusted to a machine, and though a device called the Limb-lopper, like pruning shears operated by compressed air may be used from a tractor-drawn platform to save the farmer a lot of climbing and a lot of elbow grease, he still has to direct it

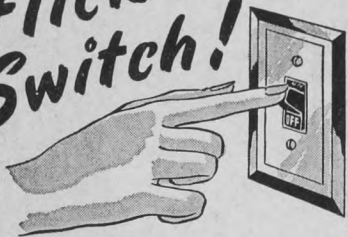


A northern British Columbia pioneer's mule team.

[Photo by Clemson]

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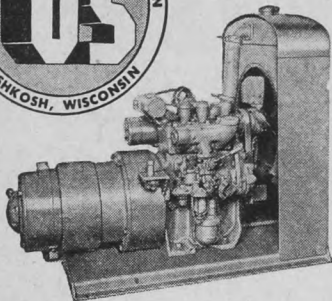
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by hand and its use so far is not extensive.

But timesavers have been developed in sidelines of both picking and pruning. One of the most annoying interruptions to the often rushed job of picking has been the horn-honk of the transfer truck driver, demanding a man to leave picking and go help load up the boxes of the picked fruit which have been hauled out and stacked somewhere at the edge of the orchard, for transportation to the packing house.

It's a slow and tiring business loading 300 or so boxes, one at a time, by hand. Or it was, until some bright grower got the idea of putting his boxes of fruit on a platform built level with a truck deck, instead of putting them on the ground, and telling the truck driver to bring a hand truck with him. These hand trucks, like vertical wheelbarrows with grab-hooks, will move a stack of six boxes at once. With one, a truck driver can put on a load by himself quicker and easier than two men could by hand. Now deck-high loading platforms dot the roadsides all through the orchard country, and truck drivers' honks no longer interrupt the pickers.

IN connection with pruning, the most disliked job comes when all the pruning is done, in early spring, and the branches scattered round each tree have to be gathered into bundles and placed in rows, ready to be picked up and burned. Until a few years ago, all the picking up was done by hand, and meant several days each spring going around so continually bent over that it seemed one's back would never straighten up, or stop aching.

Then some bright spark dreamed up the pruning sweep, a rack of long, powerful steel teeth with a hydraulic or mechanical hoist in front of a tractor. With one of these, the farmer's only hand work is to move the prunings out from between the trees so that they lie in rough rows, and he can do this with a fork, without bending. Then he drives his tractor and sweep down the row, and it not only picks up the prunings but carries them away to be burned in a single operation, while the farmer keeps his back very straight and his hands unscratched.

Add all these things up, and they amount to a very considerable change in the way orchard work is done in the Okanagan, all in the last decade. Not all farmers have adopted all the new-fangled inventions, of course; and new farmers from the prairie still think there is an enormous amount of hand work. But available to all are means of greatly reducing all the chores or extra jobs which weighed so heavily on the fruit farmer up to 10 years ago.

Only picking remains now as much hand labor as it was 10 or 30 years ago; but farmers are hopeful that any time some of the scientific agriculturists who have already helped them so much, or some ingenious Rube Goldberg among their own numbers, will devise some way of arranging that even that can be done from a tractor seat.

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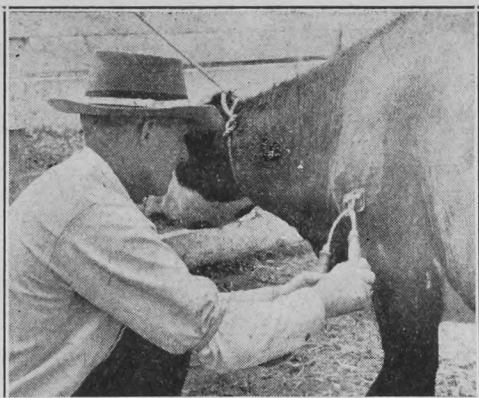
1869

...where the "Red River Carts" rolled westward

The men who opened the great lands of the west bore all the risks themselves. Their only capital was their few implements and the strength of their hands. By the '80s the Mutual Life of Canada was providing, not only low cost insurance, but capital to aid the opening of new lands in the West... and transportation was passing beyond the ox-cart stage.



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"You could find lots of them in the provincial brand book," said my host. I'd never heard of a brand book. But that's the West for you—always turning up fascinating aspects of daily life unsuspected by the Easterner.

A brand book is just exactly what it sounds—a list of all the brands registered with the provincial department of agriculture. Just like the brand itself, the brand book indicates ownership of an animal.

Alberta has some 25,000 brands registered in its brand book, and an average of 105 cattle brands are recorded per month. June of 1949, for instance, showed a record of 140 cattle brands and 18 horse brands registered at Edmonton. Alberta's chunky red brand book includes cattle brands, horses, sheep, poultry and foxes.

Brand books are published irregularly in Alberta, though the provincial police and brand checkers at the stockyards are kept up-to-date with the latest registrations. Saskatchewan and British Columbia get out regular yearly supplements to their slimmer volumes. Manitoba also registers brands, some 66 in 1948. Most of Manitoba's brands are composed of only one or two characters, rarely three.

The "arbitrary" brands, those complicated and intricate designs made up so that cattle rustlers would have a hard time changing them, are going out of existence. Today's rustler doesn't even bother to change the brand mark, as a rule.

A man's brand was, and is, his trademark, and it used to be his own affair exclusively. Today he still has some choice in the matter. When applying to register a brand in Alberta, he is sent a blank application form on which he may list half a dozen choices. It is mostly women ranchers who apply for the arbitrary symbols for sentimental reasons. But these are almost always turned down.

"Our brands today are usually composed of three characters, two or all of them, letters," said Bill Logan, brand registrar in Edmonton, Alberta. "Three characters are now standard with us, so that no one else can add to them to make another registered brand. And they're larger than they used to be, to make for easier reading."

VERY often the purchaser of a ranch takes over the brand along with the animals and equipment. He then merely registers the brand in his own name. A single owner, such as the late Pat Burns, may have half a dozen different brands all belonging

Whose Brand Is That?

The Brand Book is an important legal registry for the stockman

by LYN HARRINGTON

to him. And very often a different brand is used for cattle and horses on the same ranch. The latter is usually a smaller brand in order not to spoil the animal's appearance, and also because the horse has a tender hide and nervous disposition.

Busiest season in the brand registration office in Edmonton is in spring, April and May, just before branding season gets under way. The work piles up in Mr. Logan's office then—a great increase since depression days.

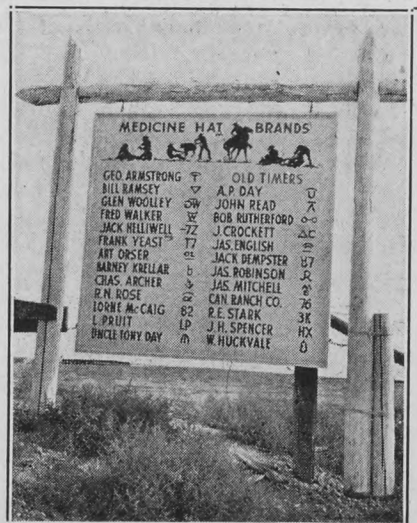
"Back then, it hardly seemed worth the two-dollar cost of registering a brand, much less renewing it for one dollar every four years thereafter. But now that beef has reached such a high price, every pound of it is valuable to the owner," said he. "By contrast, we have relatively few horse brands to register nowadays."

Finding a suitable brand is not a difficult job—that is, to find out whether a brand is "open" or not. The thing that takes time is to make sure that no close neighbor has a brand which may be confused with yours. The brand registrar even checks with the brands across the provincial border to prevent overlapping.

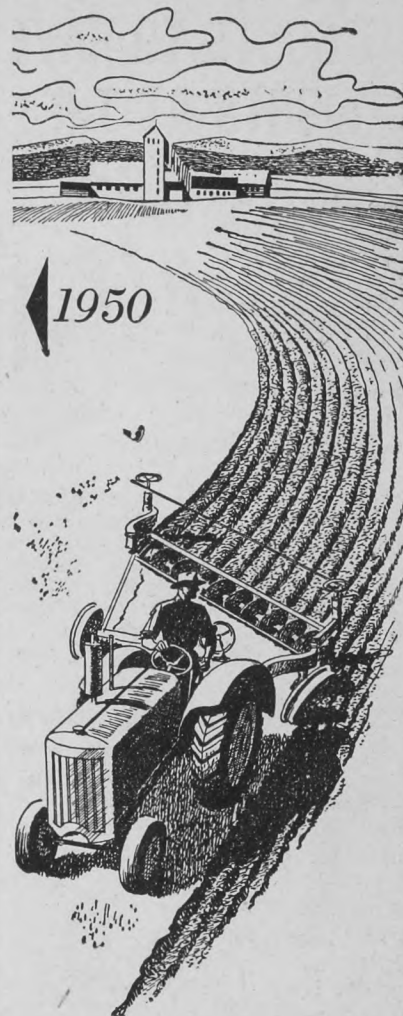
THE position of the brand mark on the hide makes quite a difference in the registration. In older times, and still in some places, 90 per cent of the brands were located on the left hip. Today the brand may be placed on jaw, neck, shoulder, rib or hip. Jaw and neck are unpopular locations, being hard to apply and hard to see. Packers and those who buy hides from them are trying to persuade ranchers not to spoil the hides by placing the brand on ribs or hip, the most valuable part of the hide. "But the prices they're willing to pay don't justify us worrying about that," one rancher told me.

Since the majority of brands are formed of letters and figures rather than complicated symbols they are easily listed in the books. Today the tendency is away from the picturesque boxes, diamonds, hearts, hats, wine

[Photographs by Richard Harrington.]



A sign post at the entrance of the Medicine Hat stampede grounds.



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LIFE INSURANCE AT LOW NET COST

gasses and saddlebags of the older brands. Few such brands are registered today.

"They're hard to list," Bill Logan told me, "and hard for the brand readers in the stockyards to decipher. They can't tell whether it's a poorly branded animal sometimes, or whether it's some unusual and unfamiliar brand. Time was when every checker in the yards knew hundreds of brands. But the veteran inspectors are dying off or retiring, and it's hard to get brand readers who can read all the arbitrary symbols. It calls for experience to recognize at once the spurs, bows, Walking O, Flying U, frying pans and what not. And it's pretty difficult to write in and describe something you can't read yourself. If a brand can't be easily read, what good is it?"

Brand inspectors are employed by the provincial department of agriculture at the main stockyards to "read" brands at a fee of ten cents a head. Provincial police also have the authority to check up on any animals and prevent illegal shipments. Both use the brand books plenty.

As the cattle are unloaded at the stockyard, the brand reader compares the brand with his book. If the animals carry your brand, all right. If any other brand, your bill of sale must prove that they were sold to you. Otherwise they are held in the name of the brand owner. Checking back with him, will be at your expense.

"We get called some awful names at the time for holding up shipments because they don't look right to us," said Soren Thusen of the Edmonton stockyard. "But we're sure swell guys when we find an animal brought in by mistake, or by someone who has no right to the cattle."

Brands which sometimes prove troublesome to the checkers are those made with acid, instead of burned on with hot irons. These chemical brands were introduced in the thirties, as being the end to the "cruel, inhumane branding irons." Chemical or paint brands are applied with irons having a concave face, in which the liquid is carried. The acid produces blisters

which prevent the regrowth of the hair.

The brand readers hate the acid brands, unquestionably. The chemicals may be spread into the surrounding hair as the brand gets itchy and burny. It may not get through the hair to the hide enough to make a clear mark.

"Sometimes you'd think the cattle were branded with a waffle iron," said Thusen. "But not many of the ranches use it. Even with the regular brands, we get trouble in winter when the fur is thick and matted, and the light isn't so good. Sometimes the hair is a little different colored, or you can feel it with your hand. But lots of the time we have to clip the hair off to see the brand clearly."

The readers also have to watch for "vents"—a second brand applied to indicate that the first one no longer holds good. This is not greatly used nowadays, when cattle make the one trip of their lives from ranch to stockyard. The bill of sale covers the need. But an unbranded beef may belong to anyone. Rightly or wrongly, the man who brings it to the stockyard can claim ownership.

When animals are bought at the yards for finishing, say, the buyer gets a clearance slip from the yard to protect him. Some of the cattle may be branded, others not. The new owner may have the animals branded with his own brand there at the yards, for a charge of 35-50 cents. He may not have branding irons of his own, may not know how to use them, or may not have sufficient helpers.

No law says you must brand your cattle, but it is a ready means of identification, the only way of proving your ownership. Alberta's Herd Law says that animals cannot run at large. If so, they may be impounded. Then, if not redeemed they are branded with a big "A" for Alberta, then sold.

Where ownership of cattle cannot be proved or is suspect, payment is held up by the province. And thousands of dollars are lying in the banks, money which will never be claimed, thanks to registered brands and sharp-eyed brand readers.

The War Correspondent's Job

Getting the news for the folks back home requires a lot of ingenuity and the correspondent sometimes has to take a bigger chance with his own general than with the enemy

by PETER GODFREY

THE reading public treats it as commonplace today that newspapermen are on their toes to provide the truth from inside Russia and her satellite states. That is their job, and we expect it of them. But the stratagems and the ingenuity the correspondents are showing today, in getting their messages through, are nothing really new and peculiar to this modern age. It is part of the tradition of the freedom of the press built up over centuries.

For instance, take the reporting of the Anglo-Boer War peace treaty . . .

Lord Kitchener, the British Commander-in-Chief in South Africa in 1902, had an unreasoning prejudice against the press. The result was that during the admittedly delicate peace negotiations, not only was there no issue of "courtesy" communiques to journalists, but extreme efforts were made to eliminate any possibility of any news whatsoever leaking out.

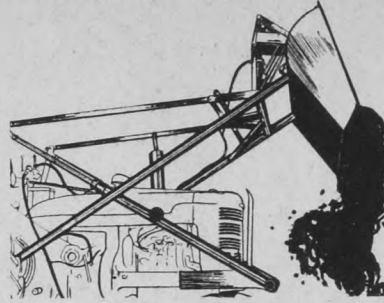
A strict censorship of overseas cables was in operation—but the newspapers had also made their plans. The "Daily Mail," for instance, received its news cables from its South African correspondent in the form of innocent-looking telegrams dealing with stock exchange transactions addressed to a well-known financier in London.

Boer and British military and political leaders met on the banks of the Vaal river at Vereeniging for the peace negotiations. Here the Vaal river flows in a southwesterly direction. On the Transvaal side the country is particularly flat, the only actual slope being the river bank itself. On the Free State side a gentle slope leads from the river to a flat plateau, on the nearer rim of which runs a road and the railway line linking Bloemfontein with Pretoria.

The peace camp—a not inconsiderable canvas city—was on the flat ground on the Transvaal side of the

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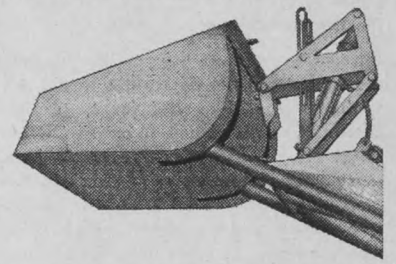
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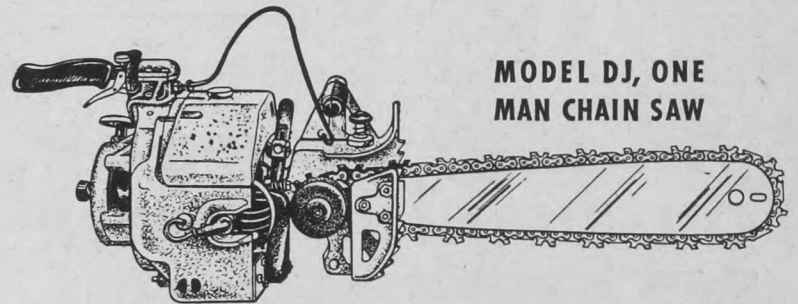
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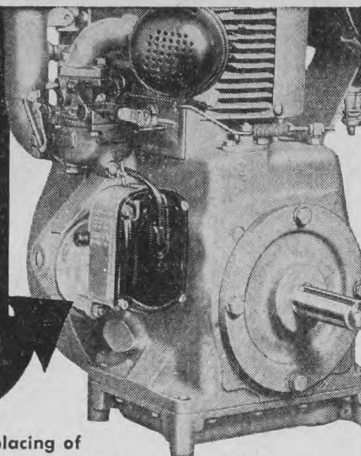
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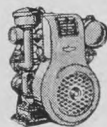


Perhaps you have never given much thought to the placing of a Magneto on an engine, nor whether it's of the "flywheel" or "Rotary" type. It's an important point because the magneto is really the heart of the engine. When it fails, your power fails.

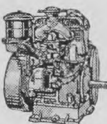
Wisconsin engineers have found through long experience and experimentation that the best place to put the magneto, not only for convenient accessibility but for better ignition performance over an extended period of time is on the OUTSIDE . . . with an independent, direct drive from the engine to the Magneto. The Rotary Type high tension magnetos used by Wisconsin Air-Cooled Engines provide the greatest protection against ignition troubles because the Magneto itself is a complete, independent operating unit that doesn't rely on an unrelated part of the engine for its successful operation. It's tightly sealed against dust and moisture, of course, so it isn't affected by wet weather or snow and there is no chance of it getting "fouled up". And it's equipped with an Impulse Coupling that provides a quick, hot spark for easy starting in any weather, in any climate, a feature that can't be incorporated in flywheel-type magneto.



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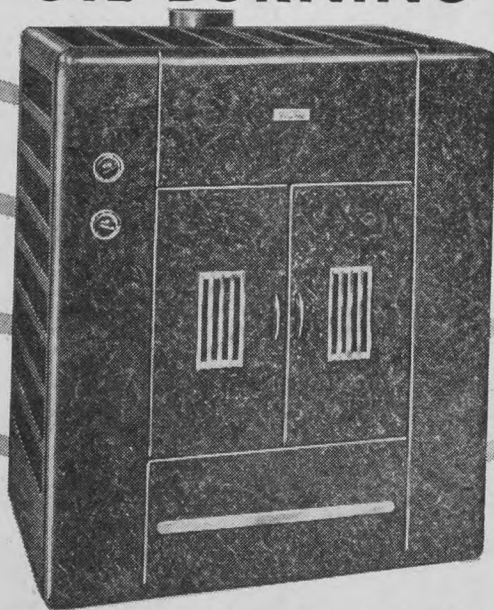
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river, and was surrounded by high barbed wire fences, constantly patrolled by sentries. Due to Kitchener's prejudice, the newspapermen were on the wrong side of the barbed wire. And their papers were cabling frantically for news.

PERHAPS the most famous war correspondent at Vereeniging at the time was the late Bennett Burleigh, the representative of the "Daily Telegraph." His name inevitably provoked facetious punning, because "burly" was a descriptive understatement of his figure. His remarkably agile brain, like that of G. K. Chesterton, was housed in a body of colossal proportions.

The fact that farmers carrying farm produce were able to obtain entry to the camp gave Burleigh an inspiration. He sent a telegram to a friend, a man named Kestall, making a rendezvous at Viljoensdrift, a small Free State siding five miles from Vereeniging. Kestall—and this was the reason for his summons—had a great love of the theatre, and in the art of make-up he was something of a genius.

Spending the money of the "Daily Telegraph" lavishly, Burleigh purchased secretly a horse and cart, which he kept under cover at Viljoensdrift, clothing, and a sufficient quantity of farm produce.

At the appointed hour Kestall arrived. With an impatient Burleigh seated in a broad armchair, the make-up expert worked painstakingly for over four hours to give the pressman a completely new face. At the end of that time even the critical Burleigh could find nothing wrong at the closest of close range, and could hardly wait to jump onto his cart and set out for the peace camp.

On his arrival there he was most indignant to find himself refused permission to enter the camp by sentries who made no effort to conceal their merriment at his appearance.

A little later some of his friends recovered sufficiently from their mirth to reveal why the disguise had been such a colossal failure. For 20 minutes, they told him, while he had driven his horse and cart toward the camp, he had been clearly visible on the edge of the plateau. Even at that distance his characteristic figure had stood out so clearly that all present were under no delusion as to his identity.

THIS little contretemps did not have the effect of discouraging the newspapermen from their ultimate aim. On the contrary, it accentuated their determination. Several of them decided that many brains would be more efficient than one. Accordingly, they formed themselves into a committee of ways and means, with the idea of pooling any information which might be picked up individually or collectively.

The merits of Burleigh's farm produce scheme were quickly perceived, and a modification decided on. A Cape Town man, by name Venter, who had had some newspaper experience, was successfully smuggled into the camp concealed beneath a pile of vegetables. Several hours later he came to the fence and tried to attract the attention of the pressmen outside.

The guards saw him first.

As Venter later told his friends: "For the remainder of my stay in the camp, I was forced to peel vegetables

—probably sufficient of the things to smuggle every delegate out of the camp and every war correspondent in!"

After this second failure a more elaborate plan was devised, of which Burleigh again was author and prime mover.

The meat supply for the camp was obtained by slaughtering animals at the crude abattoirs at the Cornelia Colliery, just over the river, and the carcasses were then transported by cart into the camp.

Arrangements were made at no little expense, and the smallest war correspondent received due instruction in a subtle code of signals. When zero hour came, he hunched himself up in a most unprofessional attitude inside a dead and disembowelled ox, and was despatched to the camp in the usual way.

Whether some hint of the conspiracy had leaked out or whether the guards were unduly cautious will never be known—but the fact remains that one of the sentries jammed his bayonet into the mortal remains of the ox. Refuting all known laws of nature, the corpse gave a violent jerk and emitted a peculiarly non-bovine bellow of pain.

The correspondent was found with his hands clasped behind his back, injured more in dignity than in the flesh. The ox continued its journey without him.

ALL this time, the correspondent of the "Daily Mail" who was never seen in the vicinity of the camp—continued to send accurate despatches to his paper on the progress of negotiations. How he obtained this information was as much a mystery to the other pressmen as it was to Lord Kitchener. The climax came with a "Mail" report that the peace treaty had finally been signed.

Rival London newspapers could obtain no confirmation from their South African correspondents. No statement was issued by the war office, and several of the leading journals stigmatized the report as "imaginative, but untrue." When, a few days later, it was revealed that the "Daily Mail" had published a factual report, a disgruntled contemporary alleged that the information had been obtained "by bribing underpaid clerks at the war office."

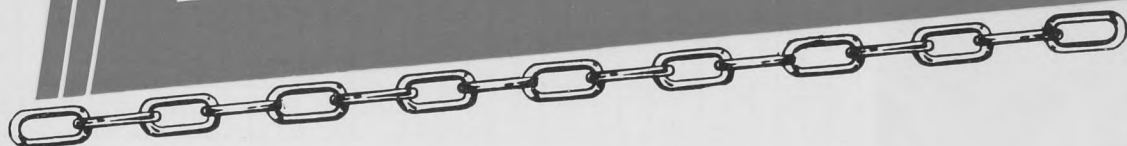
In order to refute these allegations, the "Daily Mail" published a full account of how it had received the news. First, it revealed how the cable censorship had been overcome by the means already described. Secondly, it told how its South African representative had travelled daily by train between Pretoria and Viljoensdrift. At one point on the line, a certain spot in the camp was plainly visible from the train.

On this spot, at specified times, there stood a man who had been planted in the camp in the earliest stages of the conference. He blew his nose or mopped his forehead with a large colored handkerchief as the train passed. The color of the handkerchief used provided information to the "Mail" man on the train.

The correspondent of the "Daily Mail" who so brilliantly conceived and executed this plan, later received world-wide acclaim in a branch of literary endeavor far removed from war reporting.

His name was Edgar Wallace.

Links in the Chain OF FOOD PRODUCTION



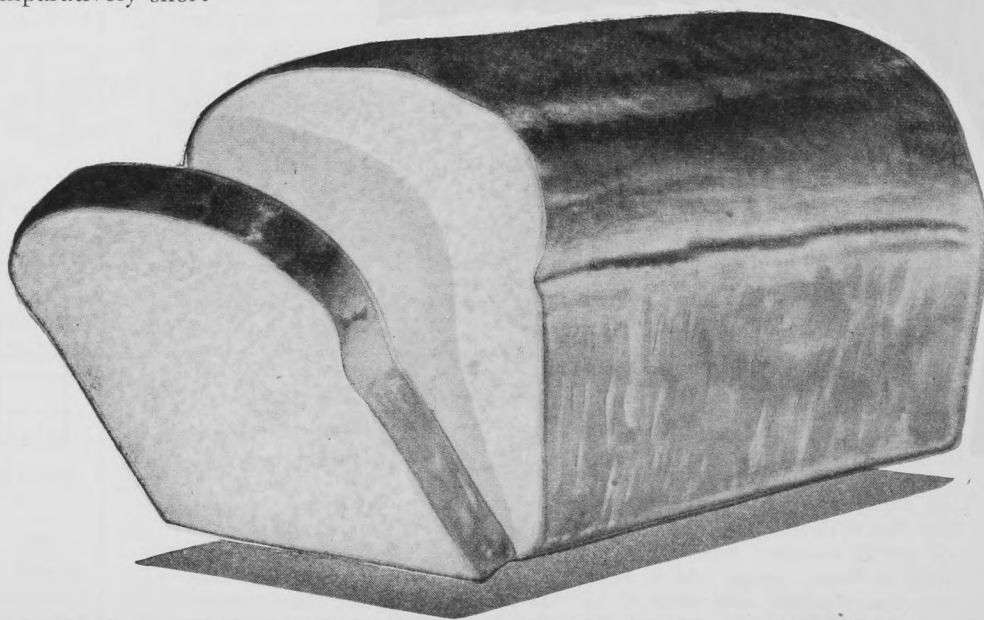
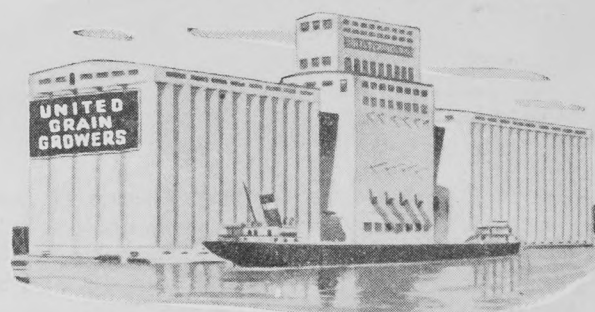
*T*HESE ARE busy, vital days on every western farm. The chain of food production is being pulled taut until it strains at every link. Out in the harvest fields the combines are humming from dawn 'til dusk. Truck loads of freshly harvested grain zoom to U.G.G. local elevators and back home again laden with U.G.G. farm supplies: coal, salt, fencing, roofing, Warm Morning heaters, Money-Maker feeds, and many more.

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Throughout the period of two World Wars and in the testing days which followed, United Grain Growers Limited and its farmer owners rendered a vital service in the production and distribution of food. Amid the uncertainties of the future, one certainty remains clear: the need for food production and its distribution will continue to be one of the paramount needs of our world and a strong, farmer-owned co-operative, such as United Grain Growers Limited, will remain a vitally important link in the economy of our Canadian democracy.



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JAM TARTS

2 cups sifted all-purpose flour
3 tsp. Magic Baking Powder

1 tsp. salt
4 tbs. shortening
1 egg
½ cup milk

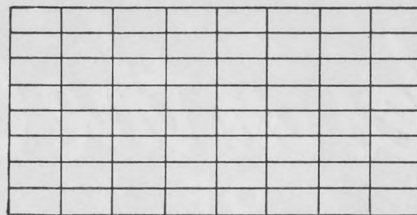
1 tbs. light corn syrup
Raspberry Jam
Cinnamon sugar

Sift together flour, baking powder, salt. Cut in shortening with 2 knives or pastry blender. Beat egg; add milk and corn syrup; add to flour mixture, stirring only enough to make dough hold together. Knead on lightly floured board ½ minute. Roll out ½" thick; cut with biscuit

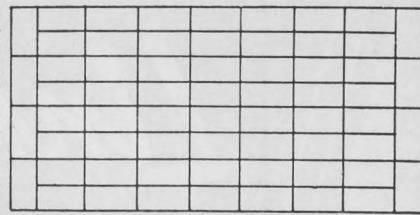
cutter. Place on greased baking sheet; make deep impression in centre of each with thumb, pressing firmly. Drop raspberry jam in each hollowed out centre. Brush biscuit dough with milk; sprinkle with cinnamon sugar. Bake in 425° oven, 12-15 minutes. Serve immediately.

Stacking Bales

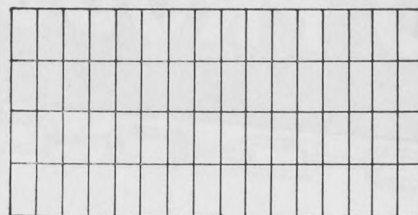
This construction forms a strong stack best able to shed water



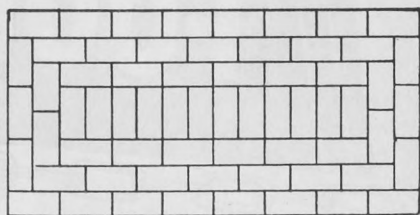
First, third and seventh layers.



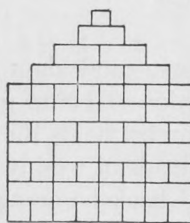
Second and sixth layers.



Fourth layer.



Fifth layer.



Perpendicular end view.

The capacity of the stack is 552 bales or about 16 tons of hay. It is the length of eight bales, end to end and the width of eight bales side by side. The length can be extended as required in units of two bales long. Each unit thus added will increase the capacity of the stack by 138 bales.

PICK-UP baling machines have stimulated a great deal of interest and research in the handling and use of baled hay and straw. The advantages of this type of harvesting apply equally well to both, particularly: where the crop is to be shipped by train or truck; where storage space is limited; where subsequent moves are required before the material is used; where the crop must be gathered and stored quickly.

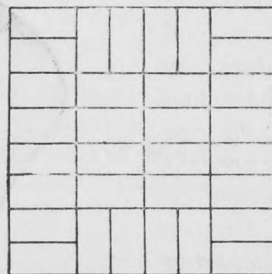
A study of harvesting methods used in Nevada indicates that bales are usually unloaded by hand from the wagon or truck. An analysis of 63 reports shows that 25 out of 39 farmers unload by hand and build stacks up to ten bales high; one farmer pyramided them as high as 18 bales by hand. Seven used elevators or derricks after the fifth row.

Iowa Agricultural Experiment Station compares various methods of unloading baled hay from wagons and moving it into the barn loft. Each method is rated in bales per minute for each man on the crew: unloading

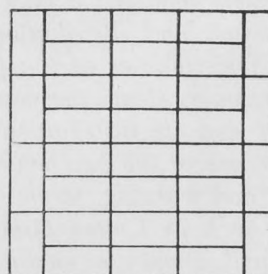
by hand, 1.8 bales; grapple fork system, 1.6 bales; elevator, 2.0 bales; pneumatic bale gun, 3.9 bales. The latter system employs a larger capital outlay in equipment which would only be offset in labor efficiency where a great deal of material was to be handled.

Stacks of bales left outdoors should be constructed to leave the least possible surface exposed to the weather. Each layer, of one-bale thickness, should be built tightly and should tie in the joints between the bales below. This procedure makes the stack more solid and prevents voids and water leakage. It also eliminates the danger of cave-outs which occur when the layers are not tied in.

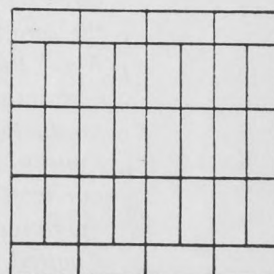
In both the square and rectangular stacks, the ends are kept perpendicular. The top four layers are built in to bring the peak to one-bale width which is best able to shed the water. The capacity of the square stack should not be altered, but that of the rectangular stack can be enlarged by extending the length as required.



First and fourth layers.

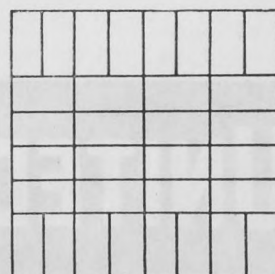


Second and fifth layers.

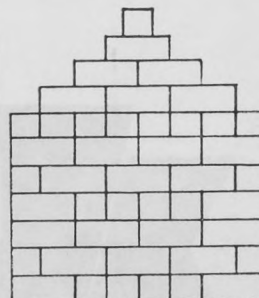


Third and sixth layers.

The capacity of the square stack is 276 bales or about nine tons. The bales of the first layer are placed with their ends to the outside. Each of the first seven layers contains 32 bales. A complete unit of this size is ideal for filling the barn loft at intervals during the winter.—R.G.M.



Seventh layer.



Perpendicular side view.

Asia in Ferment

Continued from page 7

of industry and wide unemployment. The unfortunate foreign merchants of Shanghai were almost bankrupted by taxation, the Nationalist blockade, and the Communists' refusal to allow them to liquidate their businesses or even to reduce their staffs however great their losses might be. But Chinese business men were equally hit, and early in June they urgently warned the government that it was bringing China to the verge of ruin.

A few days later the half-yearly conference of the National Committee of the People's Political Consultative Conference gave striking proof of the Communists' ability to face facts and correct mistakes. Most of the fortnight's debate was spent on a new agrarian reform law. The mere distribution of big estates among the peasants has been found to create a host of troubles for reasons peculiar to every province. At the same time there has been loud resentment among the peasants, in some places open rebellion, against the heavy taxation and confiscation of their grain for the army and to keep labor quiet in the towns. The new agrarian law meets these grievances by accepting frankly that landlordism within limits is a

necessity; and subsequently a long list of tax reductions covering both urban and agricultural life was proclaimed. Many taxes were abolished, others reduced, some are consolidated with others; several state monopolies are abolished; and pressure for subscription to the hated Victory loans is relaxed.

THE National Committee's debate is but one of many indications for which one has no space that the Chinese Government is far more interested in internal affairs than in foreign. Even the noisy propaganda about imperialist warmongers plotting China's destruction is probably mostly for home consumption, designed to keep the party and nation together now that the unifying force of fighting the Kuomintang is no more. Even the tremendous adulation of Russia and of "Stalin, our great leader," may not have as much depth as it has noisiness. The Communists have often emphasized in conversation with foreign visitors that the revolution is their own work unaided from outside; many of them are undoubtedly disturbed by the ascendancy Russia has acquired in Peking.

For Russia's record in the Far East—not excluding Korea, as older Koreans must remember—is bad. In the past 25 years she has absorbed all

Outer Mongolia into her dominions; annexed South Sakhalin and the Kuriles; plundered Manchuria of £181,000,000 worth of Japanese machinery. On the eve of the Kuomintang government's collapse she extracted from it a monopoly of air transport in Sinkiang; no Chinese plane may fly there. In her treaty with China last February she, in fact, gave nothing but promises. Since then she has obtained mineral concessions in Sinkiang and an air line to Peking under a thin disguise of joint management, the true meaning of which her history fully reveals. For the moment these facts are blurred by the war. But they should become clearer when after the war a general settlement of Southeast Asia as well as Korea must be attempted, on new lines. There is much reason to believe that Communism in Asia is far more an exaggerated form of Nationalism than it is Russian Marxism, which probably only a mere handful have ever studied. In South Korea there was a considerable faction which believed that unification with the North could be negotiated. In Indo-China the Vietnamese Nationalists insist that Dr. Ho Chi Minh is not really a Communist, that his followers are more Confucians than Marxists, and that, if the various factions were left to settle

their own differences, the dominant force would be Nationalism, not Communism.

There is, no doubt, some wishful thinking in all this, but it is a subject worth considering. Merely to return to the *status quo* after the war in Korea—though that must be the first aim: aggression must not be allowed to "get away with it" is no cure. And it is highly doubtful whether Indo-China can ever be pacified by fighting. The spirit of the times in Asia is that her affairs in each country must be settled by Asians. Against the danger that to leave them to do this would open the door to further Russian expansion may be set the eagerness of the reformers to do things for themselves, not to have them done by others; while the East has certainly as much cause as the West to fear Russia. For the task of mediation necessary to bring the various factions together in consultation India and Pakistan seem almost designed by Heaven. As Asians they can understand and speak to fellow-Asians as Westerners never can; and as agents for the distribution of economic aid from the West they would be wholly free from the suspicion of trying to reimpose the old colonialism which still, however causelessly, clings to the Westerner in Southeast Asia.



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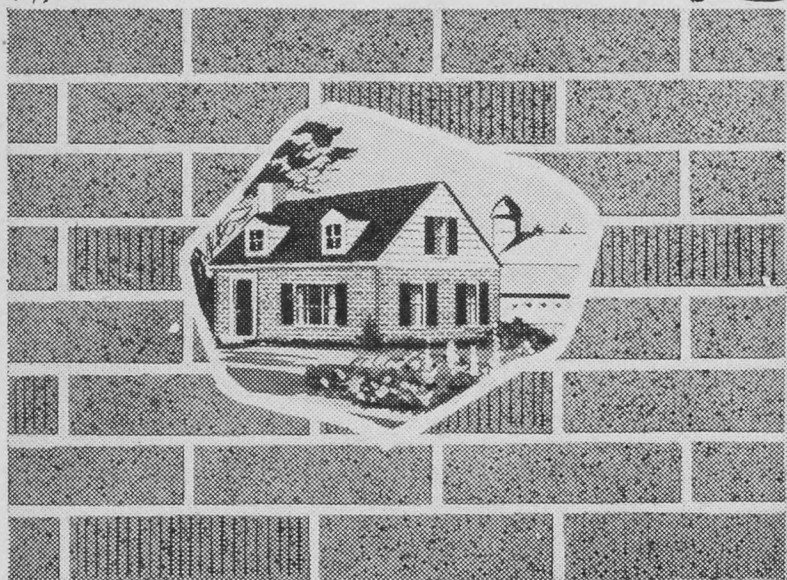
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Insulation has particular advantages on the Canadian prairies

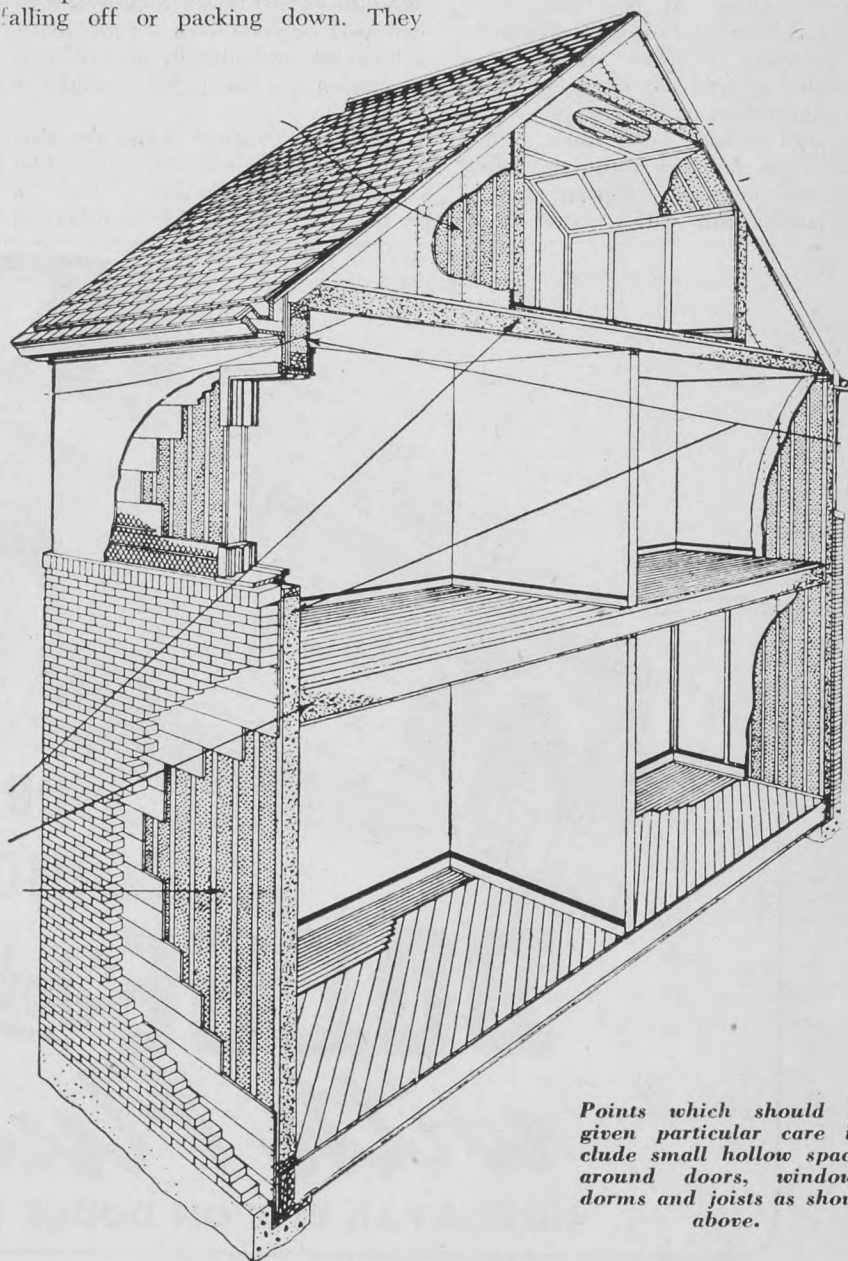
by LEN PEERS

INSULATION, sensational as it has been, is still not employed on the prairies to the full extent which conditions justify. Many important applications in homes, trailers, garages, implement sheds, barns, poultry houses and cold storage units have been ignored or overlooked. Insulating materials impede the passage of drafts and heat from the inside of buildings in the winter and from the outside to the inside in summer. They also tend to soundproof the units in which they are used.

The different types of insulators available all have a place and provide characteristics desirable in specific jobs. In general the materials should retard the flow of heat or have a low conductance value. They should hold their position in the structure without falling off or packing down. They

values of insulating materials in stopping heat movement can be compared most directly by comparing their conductance values.

Permanency of the materials can be assessed by simple tests and observation. Fill insulation must be of a material that will not easily compress and settle. Bat insulation which is tacked to the structure will naturally have less opportunity to settle. Reflective materials can not settle at all. Fill types can be tested by pouring them into a jar or can, then tapping it and observing the amount of settling which occurs. If one inch of settling occurs in a container 10 inches high, it may be assumed that in a wall 20 feet high, the material would settle to a depth of 18 feet.



Points which should be given particular care include small hollow spaces around doors, windows, dorms and joists as shown above.

should be fire-resistant and unaffected by moisture. A quality often overlooked is their ability to repel vermin, insects and decay.

Conductance ratings on insulating materials are determined by laboratory test. They are found to be closely related to the number of air spaces per inch in the material. More recently, a new type of insulation—called reflective insulation, has been found to give low conductance by virtue of its shiny, hard surface which reflects the heat to prevent its transmission through the structure. The

Fire resistance can be tested by making a pile of the material at least four inches high and applying a blow torch flame to it. Safe material should not flame or burn though some charring may be permitted. In testing moisture resistance it is most important to look for mold growth and the production of odors. Most good insulators will absorb some water but they should dry out again without deteriorating, producing offensive odors or settling. Resistance to vermin and insects is usually guaranteed by the manufacturer who mixes chemicals with the material. It is only necessary

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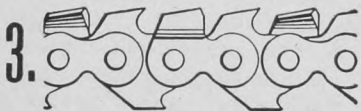
1. FOR REGULAR TYPE CHAINS

Use the Black Diamond Flat Chain Saw File. Two rounded edges for smoothing gullets. Lengths: 6", 7" and 8".



2. FOR CHISEL TYPE CHAINS

Both standard and hooded, the right file is the Black Diamond Round Blunt Chain Saw File. Cross sections: 1/4", 5/16" and 3/8". Length: 8".



3. FOR "HOOKED" RAKER CHAINS

The recommended file is the Black Diamond Half Round Chain Saw File. Half round side for "hooked" rakers. Flat side for cutting teeth. Length: 6". Cross section: 5/16" x 5/32".

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**Clean up
with**



138

here to ensure that the repellent chemical has been evenly distributed throughout the insulation.

In "Insulation of Houses," published by the National Research Council, it is stated that "the total reduction of heat loss obtained from two inches of insulation combined with double windows and doors amounts to 62 per cent, equivalent to a reduction in fuel consumption from 10 tons to four tons." Accompanied with this saving is the added comfort and convenience of an easily heated and draft-proof home. This observation was made after a study of insulation and its effects on 200 homes.

Additional benefits include protection to plumbing and water lines, soundproofing of the walls and ceiling and the maintenance of more even temperatures in various parts of the house and sections of the walls. Properly insulated buildings should show less than five degrees difference between the various parts of the house. Unheated buildings such as garages, machine shops, barns and poultry houses can be made to maintain temperatures of about 20 degrees higher than the atmosphere in extreme cold spells. Where livestock or poultry are housed and the heat loss



Heat lost through the roof of the house has melted most of the snow.

is reduced by insulation, proper ventilating systems can be employed to ensure the exhaustion of odors and moisture without decreasing the temperatures below reasonable limits.

A common misconception is that attic and ceiling insulation make a building weatherproof. The Research Council report on 200 homes states: "It was found that heat losses averaged 16.2 per cent through the roof, 27 per cent through the walls, 25.8 per cent through glass, 24.6 per cent by air infiltration, 4.3 per cent through the doors and 2.1 per cent through the floors and other media." The greatest losses, therefore, are through the walls.

Prairie conditions warrant the expenditure of reasonable proportions of construction costs on insulation. In some locales, thorough, heavy installations are not justified. In western Canada, we should use at least three inches of good-quality bat insulation or its equivalent in fill or reflective types. Installation costs should be approximately twice the cost of the materials used. No area can benefit more from this investment than can the prairies of western Canada.

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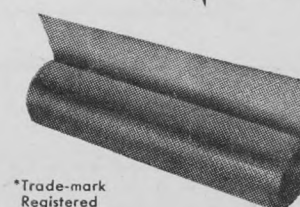
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Farm Construction

Continued from page 13

The average farmstead differs from ours quite considerably in design. The trend in Greece, parts of southern Italy and France, where a number of small landowners live, is to have the buildings, of the separate owners, together in a village, with the farm lands outside. In this case, the buildings provide an enclosed courtyard.

In northern France and Italy, on the large farms, an enclosed yard is even surrounded by a high stone wall. Generally, this is an efficient design, providing an excellent windbreak, with all buildings compact for efficiency. Since the fire hazard is lessened by stone construction, the idea is more practical than it would be in our country.

THE most compact building arrangement is that found in much of Germany and parts of Switzerland. It is similar to our old farm homes in eastern Canada, where the house and barn connect, making one building. The barns are quite commodious as well, so that entire structure is impressive. Whether this plan was adopted because of the severe winters, or for economy of construction, which is in accord with natural German thriftiness, is not certain. In either case, it is an economical and efficient method of building. It would be more common type of farm structure, if there were no objection to the proximity of farm animals.

From a Canadian point of view, the most interesting feature of European building is the new construction. In many ways it follows our general type of new farm building. Emphasis is being put on low-cost construction and it is arranged for maximum efficiency per man hour expended. The trend toward the use of fewer horses is going on abroad just as it is at home. Thus, in the main, new farm buildings seem to be pig pens, dairy cattle barns, and beef fattening pens.

The modern dairy barn is much the same as ours, where the barn method is still being used. The same controversy seems to exist as to whether the cows should face in or face out, as both systems are followed. The milking vale type of milking is to be found in England. It consists of a very small Quonset-type building, which houses four stalls, a motor, cooler and milk cans. This building is sometimes on wheels, and in any case, it is readily portable. It is located near, or if possible, in the center of the pasture fields. The cows are admitted through the front door, and are anxious to enter because they are fed chop and supplements while being milked.

A man and a boy or woman are able to milk 40 cows an hour, with this arrangement, milking two at a time, while the others are being prepared. When the cow is dry, the door in front of the animal is swung open. She walks out and another comes in behind to take her place. The milk is pumped directly from the milker, through a cooler and into cans.

THE Danish type of piggery is by far the most popular. The modern pen of steel and concrete has cement troughs, with a swinging door arrangement so that all the feeding is done from the alley way. When the feed is being put in, the section of the wall above the trough swings in toward the

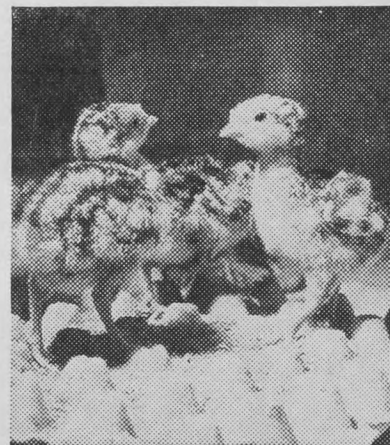
pigs keeping them from the trough. When the feed is all in place, the door is dropped to a vertical position again and the pigs get access to the trough. A slanting ramp, which slopes as much as 20 inches, takes the pigs down from their center dry section to the manure pit of the pen. This means that the bedding remains dry, while the droppings can be conveniently shovelled.

An attempt to obtain still greater efficiency in pig feeding is being made. This consists of a large barn with no partitions. Two hundred pigs can be fed, watered and bedded in 40 per cent of the time taken in the Danish type piggery. It is found, however, that gains are not as good, unless pigs are of the same age and strength to enable each to hold its own at the feeding trough.

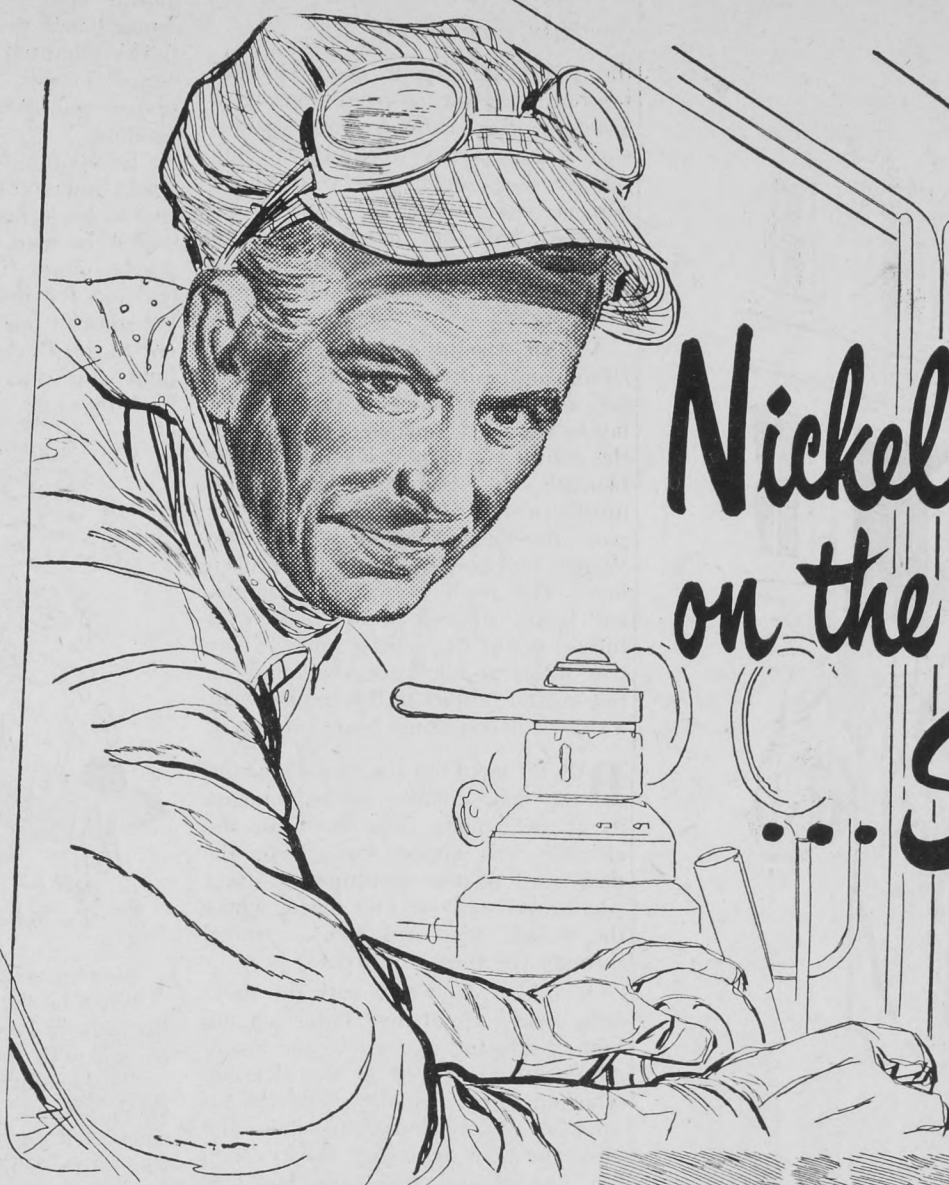
A great step has been made in the feeding of beef cattle and fattening steers, more through circumstance than planning. It was formerly supposed that the animals had to be fed in box stalls or inside a barn. But with building materials scarce and extremely expensive, different shelters were devised. At first large yards were made, using baled straw for walls, with a sheltered feed rack across one end. This has been improved by providing low-cost galvanized iron or creosoted wood enclosed yards, with wide covered racks dividing them. Feed from an adjacent pit-silage is wheeled down the raised center of the troughs and dumped on each side. Water piped into a central tank, and bedding nearby make this an easily maintained unit.

It has been found that similar animals, on the same ration, make equal gains with those kept indoors, with only a fraction of the outlay for buildings. This is something we, in Canada, should bear in mind, as our construction costs are at their peak. The low-cost yard system of feeding fattening animals, without the use of expensive barns, may well be our answer to building costs. The ease of cleaning the manure from under a shed or in a yard, with either a bulldozer or tractor loader, may, in itself, save enough money to go a long way toward paying for the equipment.

It often seems to follow that much of what we are forced into doing, in the end turns out to be the wisest thing we could have done. The farmers in Europe have apparently solved many of their construction difficulties, simply because they could not do anything else. The result has been, in many cases, improvement and simplification. It may well profit us in Canada to take note of these results.



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Swiftwater

Continued from page 15

the following day if need be. His face and ears burned from laboring in a temperature close to forty below. Coarse grey socks were stuffed into his felt shoes against the cold, and a cap of worn coonskin crowned his shagbark hair that had not been cut in weeks. His face was drawn and pinched, the dark eyes sullen from overwork.

Ma sat darning socks over an egg, rising now and then to stir the mush pot, or turn the cooking rabbit. Cam lay in the cord bunk in the corner of the cabin, his injured leg raised high beneath the blankets. His gaunt, unshaven face still etched with the pain he had endured before Doc Waters had come to reset the broken bone. His fever was down tonight, and worry showed in the black eyes turned up to the ceiling poles. There was little food left for the family—a few frozen rabbits in the smokehouse, a side of bacon, some beans and meal.

BUCKY went out for a final log, and the door creaked behind him on its crude hinges. The snow in the clearing was almost knee-deep; the dark ring of the surrounding forest was broken only at one place, where the woods road cut like a tunnel through the pines toward town.

A sudden wind rose with the darkness. Bucky could hear it far off and high, a growing roar above the forest. Abruptly it snatched at the clearing, whirling snow in eddies. Because his impulse was to hurry in again and close the door against it, Bucky stood for several minutes with his face straight into it, letting the cold and darkness and emptiness sink into him.

Indoors, he eased down his log and took off his sheepskin coat and cap. He sat down beside Viney, who was playing with the paper people she'd cut out of the mail-order catalogue. The wind made hollow bottle noises down the chimney, and the driven snow made a dry *shish-shish* against the log walls.

"Listen to that," Ma Calloway said. "The almanac was right. We're due for a real cold spell. A stormy new moon. Keep a good fire, Poor Richard says for the twentieth. Colder. Expect snow," it says for the twenty-first."

Bucky's voice had a manly note. "It's getting colder all right, but it won't snow. It's too darned cold to snow. A fellow'd soon be stiff if he didn't keep working."

"Is the axe in?" Cam asked.

"Yes," Bucky fetched it and put a keen, shining edge on it with the whetstone. Then he ran a greased rag through each of the rifle barrels. He could feel his father's approving gaze on his back as he sighted through each barrel into the firelight. "Bright's a bugle." He echoed Cam's invariable comment.

Then he sat down again, waiting, his hands clasped tightly between his knees.

"Bucky," Cam said presently. The boy went over and stood dutifully by the bunk. "Do you think you can cover the trap line tomorrow, son?"

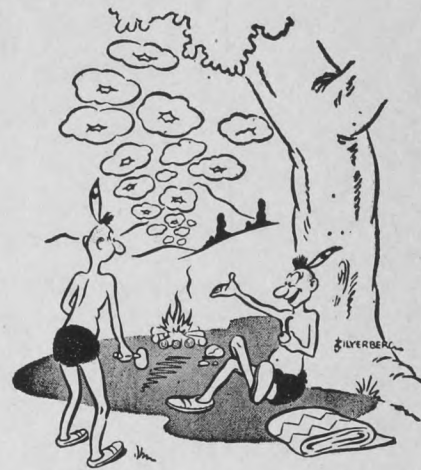
"Yes, I guess I can."

He was prickling with trepidation. The wind shook the cabin door as he spoke and he thought again of all that lay up in that far pine valley—things to be felt if not seen or heard.

"It's a long way, I know, an' it's mortal cold—" Cam's voice was drained and tired and for a moment Bucky glimpsed the naked misery and worry in his mind—"but money's scarce, son. We got to do what can be done."

"I don't mind the cold or the snow." Bucky lowered his eyes until that look should leave his father's face.

"I'll be laid up three-four weeks, maybe more. It's four days since we laid out the line. Varmints may have got most of our catch by now. You've got to go, Bucky. If you start at daylight you can make the rounds an' back by night."



"I'm talking to my wife!"

"Shucks, yes," Bucky forced a smile.

When he dared lift his eyes, he saw his father's face had hardened again, coping with the problem.

"You needn't try to bring in all the catch," Cam said. "You can hang some of it on high boughs, then reset the traps. Main thing's to find what kind o' range we got in there. Later on you may have to spend a night in the valley now an' again. Think you can manage it?"

"Sure. I could take old Sounder for company," Bucky said largely.

Cam managed a smile. "Might have to sleep in there once every week till I'm up again. So you'd best look to that lean-to we made to store traps in. It's plenty big enough to sleep a man."

Pride filled Bucky, driving back the dread.

"You'd best eat now, son, an' turn in early," Cam said, "so's you can start at dawn."

"All right."

"You're a brave boy, Bucky," Ma said. "You're the only provider for this family now." Bucky flushed hot all over and looked away. "What a blessing it is you're big enough to cover the line while your pa's down like this. Last year you could never have done it."

"He's near about good as any man," Cam said.

Bucky felt the hair stir on his nape, the way his father said that. He grew more stolid than usual, holding against the rushing tide of feeling. He wished he were all they said of him, but he knew he wasn't. Inside he was filled with fear whenever he thought of the Little Jackpine. For three days the vision of the valley had loomed before his mind's eye, filling him with dread.

MA was laying out the evening meal on the hewn-log table.

Storm gripped the house in an icy clutch. The night was full of voices. The wind cried round the corners of the cabin, and the snow crept against the walls. Once, afar in the forest, a wolf howled. Bucky's skin prickled,

and his hands made fists beneath the blankets.

Now and again he could hear his father sigh and stir, and he knew that Cam too was thinking about how they were going to get through the winter. And why, of all times, did he have to break his leg just after he'd run the trap line up the Little Jackpine? Bucky wouldn't have minded covering their old line along the lake shore, but that haunted valley . . . He knew he must go, however, and he dare not show his fear or his mother would stop him. It was all up to him.

Dawn had not yet come when Bucky descended the ladder. His father was wide awake; his mother just rising. Bucky built up the fire and made coffee. He ate a hurried breakfast, then took down his old wool sweater to wear beneath his sheepskin coat.

"Make sure you don't forget anything," Cam said. "Have you got plenty cartridges, matches?"

"Yes, Pa."

"Belt axe? The clamps for the traps? Fish bait?"

"Yes."

"Best take my rifle," Cam said.

With pride Bucky took down his father's finely balanced rifle, with its curly maple stock. It was a far better weapon than the old Sharps Bucky

carried; very seldom had he been allowed to use it.

"Best not take the sled," Cam said. "It's heavy and I want you should be back by dark."

There was something else that Cam seemed on the point of saying. Bucky knew as he lifted the latch. He waited a moment in the doorway, but Cam seemed to think better of it; no words came.

"You be right careful, won't you, son?" was all his father said as the door closed.

THE cold bit deep. It was hardly light yet in the clearing. The storm had died down in the night, and there was no actual wind now, but there was a vast rush of air out of the north that cut Bucky's cheeks like a razor. It carried bright, stinging particles on its wings; not snow, but frost. It was colder than Bucky had ever known it.

After twenty minutes of tramping he thought he would have to turn back. His face and hands were numbing, and it was an agony to snatch a breath. His eyes watered and his nose started running a mucous stream. He snatched up some of the hard, dry snow and rubbed it fiercely against his stiffened face till a faint glow of feeling came. Then he ran for a long way, beating one arm, then the other,

against his body, shifting his rifle. His face was again like so much wood, and it terrified him, but he would not give up, would not turn back.

It was more than two miles to the mouth of the Little Jackpine. He covered the distance in a partial daze. The cold had all but robbed him of volition and movement. He did not know what he could do with his numbed hands if he found a catch in the traps; he could not even use the rifle if occasion arose. He would have cried had he been a year younger, but at fifteen you do not cry. He turned doggedly up the valley.

The valley had all its former threat despite the silver coating of frost that rimmed every twig of the forest trees, and again there seemed something waiting, listening among the blue-black shadows. Except for an occasional snapping as the cold ate into the pithy hearts of the balsams, the silence was complete.

Bucky passed the spot where Cam's leg had been broken, but he did not dare stop, for his chest felt small and dry; and the ache in his hands and bones told of the bitter cold. After a while it seemed a bit warmer, perhaps because he was climbing. And then he came to the first trap and he forgot the snow and the cold, and even fear.

A marten, caught perhaps two days

before, lay in the set. Its carcass had been partially devoured, its prime pelt torn to ribbons as if in malice. Round about were broad, splayed tracks in the snow. Wind and sleet had partly covered them so that their identity was not plain, but they told Bucky enough. It was neither foxes nor wolves that had molested this trap. Neither was it a bear.

He stood up, his eyes darting here and there for a glimpse of the secret enemy, but the dark, sombre shadows of the evergreens gave back nothing. Except for the stern, forbidding mutterings of the balsam boughs overhead the stillness was complete.

His thoughts flew now to Cam. Cam would know just what to do about this. He yearned for Cam's voice, Cam's advice. Then he recalled his first real hunt. He'd been scarce thirteen then, and he and Cam were hunting partridge among the spruce jungles one afternoon, when Cam said: "We got to connive a real hunt for you right soon, son."

That hunt came three days later, at the opening of deer season. In the mist-dank cold before the dawn they had started out, moving like two phantoms along the hardwood slopes, Bucky taut as a bowstring and hair-trigger nervous for fear he might muff something. Killing your first buck—that meant coming into manhood

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along the Swiftwater. Young Freeman Tedder had shot him a buck at fifteen, but no boy had ever done it going on thirteen.

It was a still hunt, an Indian hunt. As they neared the ancient feeding ground of the deer, Cam had whispered:

"Time we spread out now. You take the north slope; I'll prog over south. Feller that gets a buck first'll whistle the other in."

Silently they separated, two fledged hunters, equal and reliant on one another as the parts of one machine. It was wonderful.

Soon they were far beyond sight or sound of each other. The mist swirled in smoky streamers against a landscape vague and heroic. Everything cold and vast, the slightest sound magnified in the dawn stillness.

IT wasn't near light yet when ahead of him a drifting whorl of mist stopped, moved on, and stopped again. Then bounded buoyantly down slope as the old Sharps leaped to his shoulder, gleaming steel itself. His eyes had always been keen, but that shot was a miracle, for these was neither time for eye to lower to sights, nor light to aim. Yet that which bounded through the air pitched forward with a bleat and a rattle of stones and lay bone-still. It was a fat buck, a ball through its heart; tangle all over like the very stuff of the dawn-dusk.

It was his faith in Cam that had won for him that morning—and all his concentration on marksmanship that had gone beyond skill into intuition. He was standing by the kill when Cam came up, the dawn just breaking so that he could see the look on his father's face.

"Six times," Cam had muttered. "An' clean through the heart." His voice had changed. "I'll liken to call that shootin', son."

It was a thunderous encomium for Bucky, for there'd been pride in Cam's tone. He'd felt queer and almost cried.

"Reckon it startled you some when I left you back yonder," Cam had said. "But you done right; you went ahead an' didn't talk. Always remember a good hunter takes whatever the woods got in store; he asks no help an' saves his talk till later."

That was the way it had to be today. Bucky moved on between the endless ranks of the trees and again, as on the first day, he had a definite feeling of being watched. At intervals he stopped to glance back and to all sides, but there was nothing to see. The heavy trunks of the dark trees near the trail seemed to move furtively behind him. The same fearsome feeling of the first day came over him again till his feet wanted to fly away and out of the valley.

The next trap had been uncovered and sprung, the bait, a frozen fish, eaten, and the trap itself dragged away into the brush and buried in the snow. It took nearly half an hour of floundering and digging to uncover trap and clog. Hard by was another set, and there Bucky saw a thing that made his skin crawl with superstitious awe. The remains of a porcupine lay in the trap. The creature had been eaten, quills, barbs, and all. Blood was all around, blood from the jaws of the eater. Only a devil with nerves of iron or no nerves at all could have done that. Beneath a spruce where

the wind had not blown the snow he saw clearly the despoiler's trail, splayed, handlike tracks like those of a small bear, each print coming to a peak of fierce claw marks.

No doubt now as to what haunted this valley. Dread seeped into the very grain and being of the timber-bred boy. Unless the creature could be outwitted or killed the trap line would be useless.

FOR long minutes Bucky stood in the dusky shadows, fighting down his fear. Then he thought of what awaited him at home—that stricken look in his father's face—and his fear of that was greater than his fear of the valley.



"What time do you guys get up, anyway . . . It's practically 30 seconds past crowing time!"

He hung his sack of frozen bait on a high bough. Useless to reset any of the traps now, for the creature he was pitted against could smell cold steel, unbaited, through two feet of snow, and was led out of sheer devilishness to rob and destroy wherever it prowled. This was the "bad dog" Peter Nigosh had spoken of. Cam had been about to tell him as he left the cabin that morning, but had refrained, hoping against hope that it wasn't true, not wanting to frighten him.

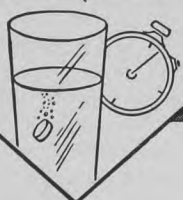
Bucky plodded on again, his chest hollow with hopelessness. He did not know what he could do, but he must go on.

The snow grew deeper. His body warmed with his exertion, grew moist, then the icy fingers of the cold found him afresh. For more than an hour he struggled on. One after another he came upon traps that had been despoiled. At the ninth trap a choked cry broke from him. Scattered about in the snow were tufts of fluffy black fur with long, silver-white guard hairs. That trap had held a prime silver fox, one of the greatest prizes known to trappers.

As he crouched there in the snow, anger jarred him to the depths. He rose and took up the endless plod again, peering into every covert in the hope of seeing a dark, skulking shape. He did not even know the size of the creature. He had never seen a wolverine. Few hunters ever had, such was the wile of the beast. But there was old Laban Knowles' tale of the wolverine that had gnawed his walnut rifle stock clean in two, and scored the very rifle barrel, and Granther Bates had told of a woods devil that had killed his two dogs in fair fight, and gnawed its way through a log wall to rob him of his grub cache. Oh it was a demon right enough, whatever its size.

By midafternoon Bucky was nearing the farthest limit of the trap line.

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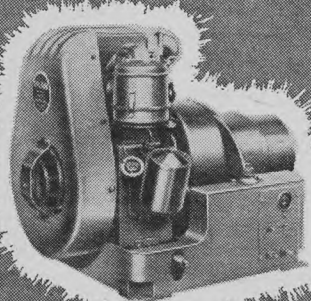
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Of the twenty-odd traps he had visited only two had been unmolested. Abruptly he came upon a fresh trail in the snow: the same handlike tracks and demon claws. Grimly he turned aside to follow its twisting course.

He was descending a steep, wooded slope when on a sudden impulse he doubled in his tracks and went plunging back up the grade. As he reached the crest a dark, humped shape took form beneath the drooping boughs of a spruce. It was a ragged, sooty-black and brown beast, some three and a half feet long, that lumbered like a small bear, lighter-colored along its back and darker underneath, in direct contradiction to all other forest things. It saw him and its eyes, green-shadowed, fixed those of the boy who stood beneath a tree some hundred feet away. Its black jaw dropped open and a harsh, grating snarl cut the stillness. The utter savagery of the challenge sent a shiver through Bucky's body. His rifle flew up and he fired without removing his mitten. The whole valley roared to the thunder of the shot. In the same instant the wolverine disappeared.

BUCKY rushed forward, reloading as he ran. Under the spruce were several drops of blood on the snow. But the wolverine had vanished. Because of his haste and the clumsiness of the mitten, Bucky had only grazed the animal; he'd lost his one big chance.

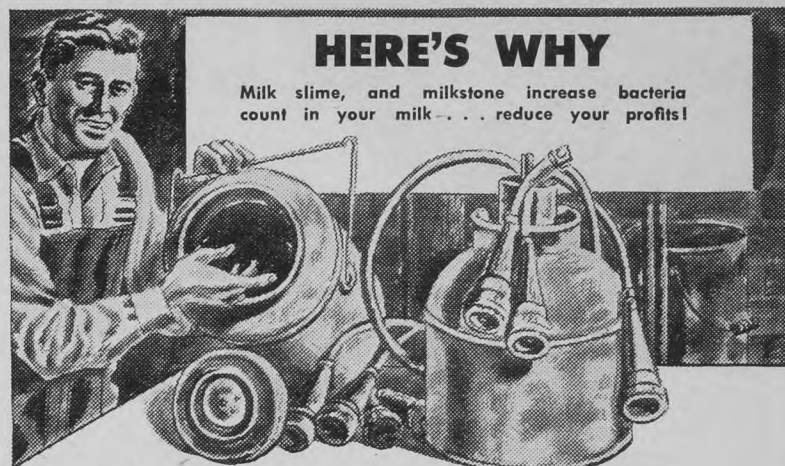
Panting, stumbling, sobbing, he plunged along the trail, bent low, ducking under the drooping limbs of the trees, sometimes crawling on hands and knees. He saw other drops of blood. That gave him heart. He had a lynx eye on the trail, even his father said that. He would follow on to the very Circle if need be; he would not miss a second time. His one hope was to settle with the creature for good and all.

Down along the stream bed the trail led, twisting through vast tangles of windfalls, writhing masses of frost-whitened roots and branches. He tripped amid the tangles; twice he fell, but he thrust the rifle high as he went down to keep snow from jamming its snout. He plunged on again; he did not know how long, or how many miles, but he was aware at last of the afternoon nearing its end. And the end of light meant victory for the enemy.

The way had grown steeper. He was coming to the narrow throat-latch of the valley's head. A place where hundreds of pine trees, snapped off by storm and snowslide from the slopes above, had collected in a mighty log jam, a tangle of timber, rock, and snow that choked the stream bed from bank to bank. Countless logs lay criss-crossed in every direction, with two and three-foot gaps between. The great pile was acre-large and fifty feet high; a collection of numberless years, rank with the odor of rotted wood and old snow. Into this maze the trail of the woods devil led. Bucky skirted the pile. It did not come out. Somewhere in there the creature doubtless had its lair.

Trembling, he squeezed his way into the great jam between two logs. The wolverine might be fifty yards inside, but somehow it must be ferreted out. In and in Bucky wormed his way, pausing to watch, to listen, his rifle thrust carefully before him. Then down into the twisty chaos of

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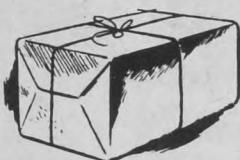


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dead trunks, led by his nose, for the rank odor of the devil's den now filled the air, coming upward from the bottom of the jam; fouler than any skunk, the taint was, the choking reek of carnivore.

A PRICKLING sensation ran up and down the boy's spine. His distended eyes stared and darted here and there in the shadows. The dank air of the place seemed to rise up and beset him, charged with evil.

To his ears came a harsh and menacing growl, but from what direction he could not tell. He could see nothing. He loosened the safety on his rifle and wriggled forward again, and again the air was filled with that eerie challenge. A gasp was wrung from him, for this time it seemed to come from behind. He whirled in panic and there was nothing, but his terror mounted. Then still greater terror came in the suspicion that there might be two of them.

He crouched, peering, shaken to the marrow. And then movement caught his eye below and he made out a soot-dark form in the nether shadows.

Bucky wriggled on his belly along a slanting log, maneuvering for a shot. He braced himself, craning far downward, then in the very instant he took aim he slipped on the snow-sheathed log. The gun roared, the shot went wild, and as he caught himself the weapon slipped out of his grasp. It clattered downward, striking against log after log before it lodged at the bottom of the jam, snout down in snow and debris, its barrel clogged, useless.

In that instant all the supercraft that has made man master of the wild fell away and Bucky was face to face with a creature that was a direct holdover from Old Time. The wolverine was clambering upward. Inexorably it advanced upon him. He yelled at it fiercely, but there seemed not a vestige of fear in the creature's being. A sob broke from Bucky, but his hand went to his light belt axe; he did not give ground.

With a panic shout he leaned and swung at the low, flat head, but missed because of hindering logs. He swung again and again and the blade struck home, but bounced off muscles and sinews tough and unyielding as gutta-percha. The creature's advance never checked. Its fighting mask was terrible; the small, implacable eyes brimmed with a blue-green flame, as if the surface of them were burning as the surface of wood alcohol burns in a lamp.

IT lunged suddenly for Bucky's dangling legs and he flung himself up and over the log, slipped on its icy sheath, and grasped desperately for another log; slipped again to bring up eight feet below. He flung round with a cry of desperation to meet open jaws, feeling the demon almost upon him. But the thing was logy and slow. Its might lay in its indomitability and a slow, resistless strength.

In it came again, above him now. He stood upright, braced on two logs, to meet it.

He struck again, yelling with every blow of the belt axe, but hack and cut as he would the beast's wounds seemed to have no effect upon it. It bore in and in. Leechlike, it maneuvered along the undersides of logs to

avoid the axe blows, always coming on.

Then Bucky slipped again, avoiding the traplike jaws. He fell clear to the bottom of the jam, biting snow as he screamed. He was on his feet again before the creature above released its claw hold and dropped upon him like a giant slug.

An arm flung up over his throat, he jerked back blindly, and just in time. Spread saber claws tore open his heavy coat. Then the axe fell again, blow after blow with all his strength.



"If it's in the ground, he'll root it out!"

The thing came up at him in spite of all. The jaws lanced in and clamped on his leg and he felt his own warm blood. Then his hand found the skinning knife at his belt and the blade sank deep in the corded neck—sank and turned till the clamp of jaws released.

Then up out of the abatis Bucky climbed till half his body emerged and there he rested, panting, spent. He whimpered once, but there wasn't a tear in his eye. Those eyes had a jumping light, and one could have seen back through them like an open window into a fearsome country one had never seen before. Instinctively they lifted skyward. Overhead, as night drew on, had come a great rift in the dull canopy of cloud and a few stars shone faintly through. He held his eyes on the brightest star, until chaos left them and their vision steadied, cleared, as if his head were higher up than ever it had been before, in a realm of pure air. His brain was almost frighteningly clear.

THE trickle of warm blood down his leg roused him. He pressed his heavy pant leg round his wound till he felt the bleeding slow. Soon it would congeal. Painfully he turned down into the maze of logs again and after a time brought up the rifle. Then down again to struggle upward, dragging the woods devil itself. He laid it out on the snow and brought forth his bloody knife. He wasn't tired now; he wasn't cold; he wasn't afraid. His hands were quick and sure at the skinning; even his father had never lifted a pelt with smoother, defter hand. Darkness shut down as he worked, but he didn't need light. There wasn't any hurry. The head he cut off and left intact, attached to the pelt.

He rose at last and rolled up his grisly bundle, fur side out, and moved away through the blackness of the trees, sure of tread, for he had the still-hunter's "eyes in the feet." The reflection from the snow gave a faint light. He limped a bit as he turned homeward.

Off in the black woods a wolf howled dismally and Bucky smiled. Never again would the night dogs make his skin crawl. Never again would he be afraid of anything above ground.

FOR four weeks after the killing of the wolverine, the hide of the woods devil hung pegged to the Calloway's log wall for all who stopped by to see. It was Cam himself who insisted on this. Pride rose in him like a yeast over Bucky's exploit, for none knew better than he the craft and mettle of this demon beast and all the boy had overcome in the valley—things that would never come out in words. Pride glowed in Bucky, too, a quiet and tempered thing that steadied and strengthened like strong food in the belly, for it had its roots in things conquered and achieved.

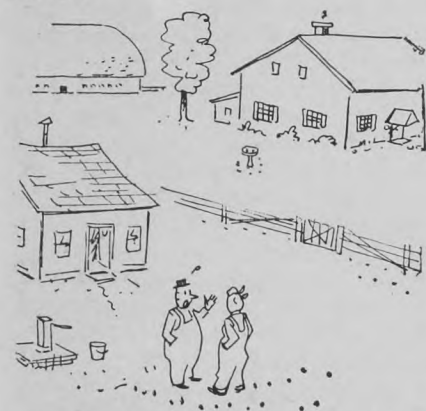
Scraped, dried, and softened to the pliancy of buckskin, the devil's hide was pegged beside the fireplace. When the word got around outlying neighbors came daily to see the thing and to hear the tale from Bucky's own lips. Men from as far north as Otter Run made trips to the Calloway place just to see the skin, for not a hunter in the Swiftwater country had ever shot or trapped a wolverine, or ever caught more than fleeting glimpse of one.

"Think there might be two of 'em in the valley, Pa?" Bucky had asked the first night.

"Two nothin'!" Cam snorted. "Ain't room in the woods for two o' him. Them devils war on each other, too, tooth an' tong. Even mates will fight to death at times. Feller never finds but one of 'em on any range."

Cam disclosed then how he had felt from the first that a woods devil haunted the valley and had been certain of it after Peter Nigosh's warning, but had refrained from telling Bucky. He told of how the little Aleuts of the far North strove to obtain a hunting coat of wolverine skin as a badge of craft and bravery and a symbol of arrived manhood. And of tales he had heard of a tribe in far-off Africa where boys achieved manhood only by killing a lion.

Cam was all for preserving the devil skin intact. Later they could have glass eyes put in the head. But Bucky craved a cap of wolverine fur, so Cam said no more. It was Bucky's treasure.



"We have no trouble keeping a hired man as long as we let him have our house."

Finally, when folk stopped coming, Ma Calloway set to work on the hide. There was enough for a pair of mittens in the bargain. With the cap of rough, coarse brownish fur crowning his unshorn head, Bucky looked like some shaggy, untamed woods creature that had crept in by the fire. Shorter and shorter were his stays by any fire now, for all the life of the family depended upon him.

BUCKY was 16 now, two weeks gone. Already he was taller than Cam, but scantling thin, what with

work and worry. The first fuzz of manhood's beard was beginning to show along his lean cheek. Wild as a lynx cat, people down in Swiftwater said of him, shy as the brown willow wren which folk only hear and never see. Townfolk caught only fleeting glimpses of Bucky these days, trading a hide for victuals at Stemline's store, or streaking through the woods.

Cam still lay in his bunk sunk deep in misery. For another month at least he must chafe in idleness, waiting the time when Doc Waters would let him try out his slowly mending leg. And even then it would be a time before he could trek the woods. So much to be done, so brief the time to do it in, and this the high tide of the winter trapping season.

Bucky was bowed beneath the care of the trap line and all the chores—trying to act like he was Cam, holding hard against the undermining of exhaustion and that subtler gnaw of self-importance, that vaunting and being puffed up that the Good Book warned against. Owl-serious he was, hardly laughing even at Ma's jokes, keeping tab of his catch with stub of pencil, chunking firewood on the hearth with unguarded noise and patriarchal sigh, polishing gun barrels till they shone, whetting axe to razor edge, trying not to show the fierce rioting of his mind. He hunted early and late to keep the family in meat and often he rated Viney, who asked him endless foolish questions out of admiration.

No greater champion had Bucky now than Viney. Each new harvest of fur built Bucky up in the worshipful eyes of his sister; each night spent in the lonely blackness of the deep woods, which Viney shuddered even to think about. Always there'd been a deep bond between these two, nonetheless binding because it was wordless, or cloaked in the disparagement of 16 for nine. But now Bucky knew and Viney knew the depth of that attachment.

A man now in all but siring, with Ma constantly at his shoulder, each the other's staunch lieutenant. Never a complaint or jaw word out of Ma these days, nor any reading of the law. Always Ma's sounding off had been reserved for the unimportant times. Now life flowed through her calm and strong and silent as the current down a big river. She was strong; she knew how to struggle, Ma did. Never one to resign herself. She even found occasion to make her special kind of jokes at times, which always brought a chuckle out of Cam. Her good nature was like another fire in the house, keeping back the chill of worry as the pitch-pine logs kept at bay the frost.

She was never idle. When all housework was done and a pot of something stood "simperin'" on the fire, she'd sit down and help with the skins Bucky brought in, stretching them on their wooden forms, scraping and softening them by the open fire, kneading them to the pliancy of suede, brushing their piled nap till they glowed with the lustre of perfection.

TOO full of twist and go to be still, Viney too was set to the scraping and softening. Even Cam lying in his bunk could help with this—a godsend. Carefully he examined every pelt that Bucky spilled from his filled sack of an evening with expert appraisal and often with a word of praise, while



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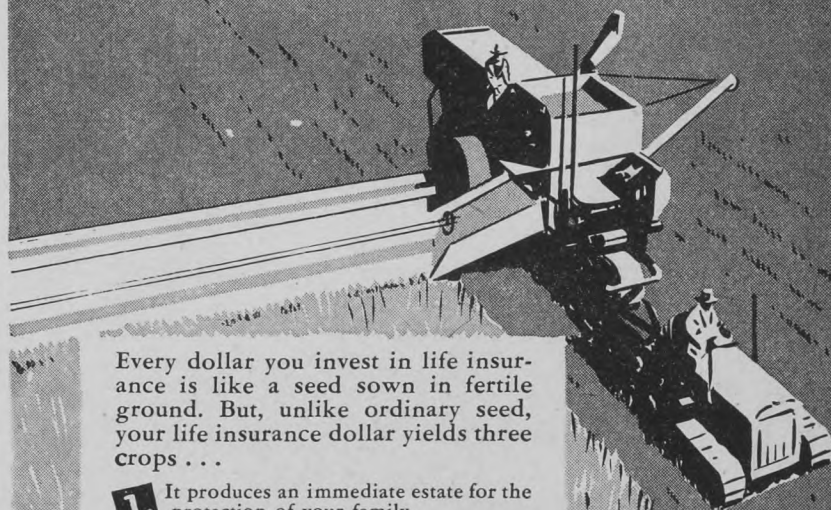


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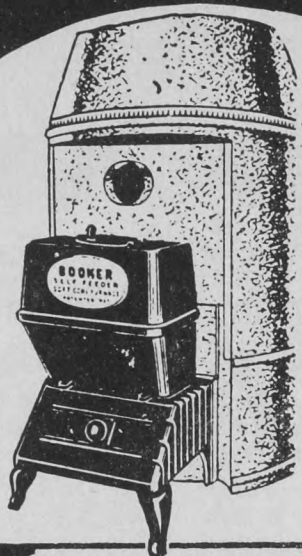
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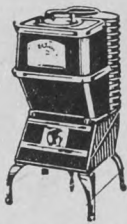


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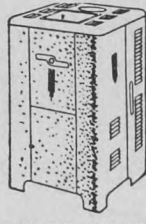
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KING AND JARVIS WINNIPEG MAN.

Bucky stood by with the faint sweat of pride on his frost-darkened face. Cam would hold the pelts up, blowing expertly into the piled nap, estimating their value—each skin a rare mint of the secret woods.

"How many now, son?" he would ask and Bucky, who kept careful record, would study his list.

"Forty-two, Pa. Twenty-four of 'em prime number ones, I figger. Worth up to \$25 apiece at Stemline's."

"We're gettin' out o' the woods for fair," Cam would say. "Spite o' me lyin' here hog-tied an' halted. Ol' Hard Luck went an' hunted him another range, after layin' me low. Couldn't cope with you nohow, Bucky."

"'Bout time we drew an easy breath or two," Ma would say.

Bucky would flush and say, "I aim to have more skins a-curin' here than a body'll know what to do with, come January. There's another little valley branchin' out o' the Jackpine. We was hindsighted not to see it sooner. Happen our catch keeps good, I could buy me more traps and work up there. We'd soon pay off all debts then. But Viney or some 'un would have to do the chorin' here. I'd not have the time."

The skins kept coming in. Three cooped chains, suspended from a beam of the storehouse against the inroad of rodents, were weighted with them and the cabin walls were pegged from floor to rafter. The Jackpine Valley, now free of devils, was giving up a daily tithe of treasure, richer than any take Cam could remember even in his luckiest years. There was food aplenty in the cabin—meat and side pork, bacon and beans, flour for bread and flapjacks, even maple sirup, and canned goods galore.

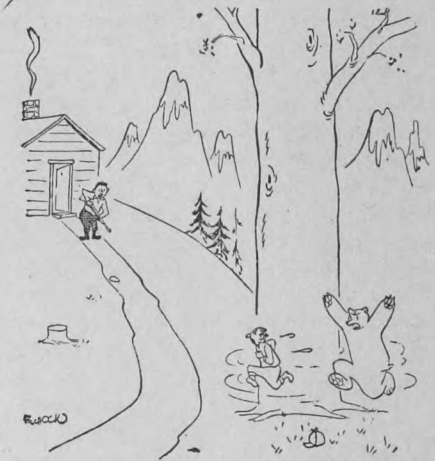
BY mid-December there were otter, mink, and martin skins stretched and curing; two cross foxes, and two greys, the pelts of six grey timber wolves, three lynx skins, and five black and gleaming fisher skins, worth a whole season's work to any trapper. Always these had been Ma Calloway's special love. For years she had dreamed and talked of having a cape of fisher skins someday, with maybe a muff to match. But never an extra look did she give them. Never a hait did she care, it appeared, how many skins they pegged up to cure.

Cam watched from his bunk, his eyes twinkling at times. Then one morning, when Ma had gone to the root cellar, he called Bucky to his bunk. An hour later Bucky was on his way to the Mellott cabin, carrying with him the cream of the Calloway fur harvest: the five glossy fisher skins, and with them a pretty grey-fox pelt as a gift to Mrs. Mellott, who had no little fame in the region as a seamstress and a deft worker with fur. It was a reckless thing to do with the family's many outstanding debts, but there is nothing like a long, close-up tussle with poverty to make men prodigal of their first winnings. Cam and Bucky were agreed. Christmas was not far round the corner now, and Ma was to have her cape at last, whether or no.

THAT winter, cold was more than a word. Mid-December was a whole series of heavy snows, with days of still cold in between. When the sun shone at all it was not centered, but surrounded by a great wan

halo half as wide as the zenith, out of which lurid sundogs flared, warning of further storms to come.

On still days an unearthly calm seemed to have settled over the land and the snap of a twig carried almost a mile. By night the frost probed into the hearts of the pine till they cracked and moaned at times, filling the silence with the strange, protesting voices of inanimate things. Often the cabin timbers snapped with a sound like small pistol shots.



"Chase him up here, Bill . . . So we won't have to carry the meat!"

With the cold came the wolves, more than anybody on the Swiftwater could mind for many a year. Like the spirits of the snow, they came in closer as the cold increased. They came round outlying homesteads after dark, thick as crows in summertime, the smaller brown wolves of the plains country with their yapping ululations and the big grey timber wolves from farther north that howled in banshee chorus nightly, near and far. 'Twas not moon baying, as some liked to believe, for they howled closer on the blackest nights. 'Twas the hunger call, Cam said, aimed to addle the wits and nerves of all small game of the thickets with fear.

"It's eight year or more since I heard that devils' song so close," he said.

Ma would stand only a few minutes of their carrying on around the place, then she'd go out the door and whack a fire stick against the cabin wall till they'd stop.

Bucky had no fear of them now. Since his ordeal in the valley there was not even a smidgin of dread left in him. Long since, Cam had taught him that an able-bodied man had nothing to fear from wolves, despite the lurid tales that were written about them. They'd follow a man like any cur, but keep their distance. They knew well the difference between a man with a gun and a man unarmed.

Old Scissorbill the crow never left his cage these days. He sat there hunched, ill-natured and accusing, in his rusty black, with a mortal fear in his hard old eye whenever cabin door was opened. He'd set on being a convalescent till spring, had Scissorbill, and now Ma must feed him and clean up after him like another patient in the house. Old Sounder too' clung close to the fire, refusing to go outside till rated and stirred with a boot toe.

And Keg was another problem for a time. He bawled and scratched at door and window, miserable and put-upon, pleading to be cabin-bound like the rest of the family. But Ma Calloway was adamant. She drove him back to his place in the deep root cel-

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lar, now empty of stores, where he whined and mumbled for some days. All his instincts leaned toward sleep as the snows came heavier, but all of it was vague as vague, a mere whisper in the blood, for he'd never been taught the snug habit of hibernation. But gradually Nature took over for him. He now gave over eating entirely.

For a time the family worried about him, but 'twas neither death nor sickness that had come upon him. Gradually, as the snows and cold increased, he fell into torpid sleep from which he roused only for a few minutes every two or three days. Several times each day Bucky or Viney looked in on him fearing that he would freeze, but his heavy fur and the heat from his own fat body took care of that, tempering the air of the small dugout. Heavy snow soon lay over the roof and walls of the root cellar and banked against

the plank door and Keg slept on, as snug as in any cave the deep woods might have offered.

Cam chuckled when he heard.

"He's free o' worry for the winter now, an' so are we. He'll sleep an' dream an' do a sight o' growin' there till April, an' come out a larrupin' big bruiser well-nigh growned an' wonderin' what's come over him. He'll take to the wild, I mistrust, come berry time."

AFTER the third heavy snow Viney had to stay home from school, for the drifts had become waist-high on a man, so now there was a third pair of hands for curing pelts.

Bucky had reason to believe there was another black fox or two on the new range. He had seen fresh fox sign after each new snow. He had also seen the broad, round tracks of old Fire Eyes, the Swiftwater panther,

known to every settler in the region for his bloody raids on outlying farms. Evenings he and Cam held councils of war in the cabin. Cam could envision every foot of the valley and the winding stream at its bottom. Even lying there abed he knew all the likeliest spots to snare a fox.

"Is the stream froze over?" he asked.

"Better than half is under an inch of ice. But up above there's plenty open water."

"Try can you find an open stretch where the foxes come to drink," Cam said. "Likely you'll find a stone there, out in the water a foot or two from shore. A fox is everly p'tic'lar about his drinkin'. He favors restin' his forefeet on a stone in the water while he laps his fill. It's there you can outsmart Mr. Fox with a waterset. A black fox is smart as a treeful of owls at smellin' out traps. Twice as sharp

as ary grey an' well nigh as slick as a woods devil at catchin' the man scent. But a water set carries no scent. Happen you can plant your set on a rock that's just under water you'll get your fox. Come next storm the trap pan'll look like a nubbin o' rock covered over with ice an' snow. Some fox is bound to put his foot on it for a last drink."

The next day Bucky found just such a drinking place as Cam had described. A flat rock at the stream bank was half submerged in water. It was as though Cam had visited the place in spirit and seen all beforehand. Bucky laid his trap and came away hoping for another snow to camouflage his work.

For catching a prowling panther, Cam said, the surest way was a spring-gun set; a loaded rifle should be set in dense brush, with a cord leading from the trigger to a fresh-killed

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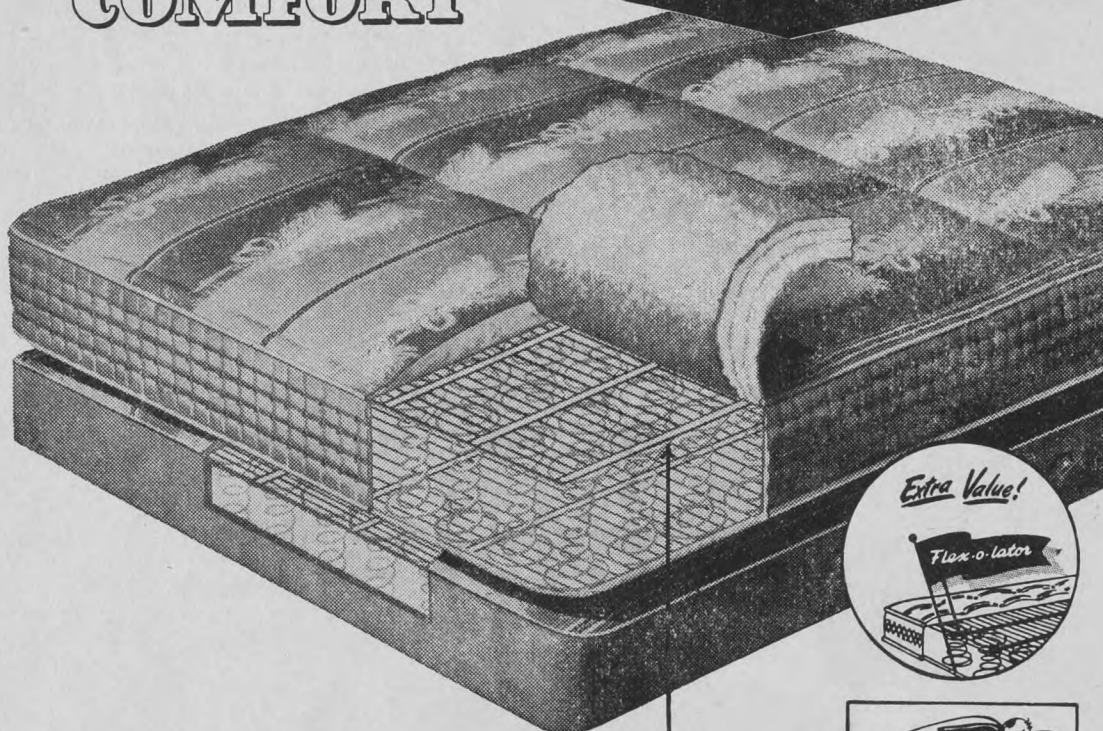


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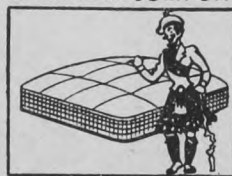
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"A painter cat is purely addled. He's the cat that curiosity killed, as the feller said, an' he's bound to examine any bait that's laid out. The rest is up to the gun."

Bucky listened to all in rapt attention.

Talk of traps and woods lore was only a part of the wonder of the winter evenings of late. Ma had cannily set aside three nights a week for family reading, during this period when Cam must keep to his bed. These were red-letter nights for all, a time of celebration.

Oil was a scarce thing and often the family's only evening light was the glancing glow of the open fire. Even their evening meal was eaten in this partial shadow, but their hands knew well the road to their mouths. But on these special nights, Ma would bring down the Radiant Beam from its place on the shelf, and put it on the center table. Its golden glow would light up the whole big room, even to the smoke-darkened ceiling poles. Then she would bring out the great brass-bound family Bible from its shelf and there would be reading aloud for an hour or more.

Ma would invariably start it, with serious mien, forging haltingly through a chapter or so, wrestling with many a word and phrase. Finally Cam would take over. He had the heart and the voice for it. Great was the lift in their spirits that came from an hour with Scripture.

With the great book propped on his chest, Cam would roll out story after story in a sonorous voice that made the cabin ring. Cam did not "wale a portion," but took Old Testament as it came.

Few characters of the book escaped some sharp disparagement from Cam. Paul and Moses were among these few. Of Moses he never ceased his praise.

Bucky sat listening, entranced, his spirit wandering far as he followed the deeds of these mighty characters through the realm of bold antiquity. It was a great, glorious, heroic world this, in which his mind was privileged to roam. He thought now of his own given name of Jude and came out abruptly with a question that had worried him long:

"How come I was named for the worst scutter in the whole Book, Pa? I never could figure it."

Both Cam's head and Ma's came round, mildly startled. Then a host of tiny wrinkles played about Cam's dark eyes as he closed the Book.

"Twant Judas you was named for, son," he chuckled. "Twas just plain Jude. Good enough name for any man."

Ma put the Bible back on its shelf and blew out the light.

In the dimness of the firelight Bucky heard his father muttering to himself: "Names! Pack o' nonsense, these days. Why the sorriest man we know bears the name o' Paul. Another one's Solomon. Ol' Sol Middleton."

Bucky climbed the loft ladder to his bunk, thinking on these things: of skinny old Paul Pennix, the banker, and Sol Middleton, and old King Solomon with a house full of hussies, and he thought about them all next day as he went his lonely rounds.

TO BE CONTINUED.

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The Countrywoman

THE guiding purpose in the organization of the Associated Country Women of the World was "to provide a means of communication between country women of the world." It started as an off-shoot, a special committee of the International Council of Women, called together in 1929 by the late Marchioness of Aberdeen and Temair. In 1933 at Stockholm, it was decided and confirmed that it should function as a separate body, under its own constitution, to set up a small office of its own and to provide its own leadership. A Canadian woman, the late Mrs. Alfred Watt of Victoria, B.C., was its president until 1947. The A.C.W.W. has been accorded strong support, has tapped rich sources of energy among rural women. It now has close to 6,000,000 members in 103 constituent organizations in 21 countries.

Having come of age, the accomplishments and stated aims of the A.C.W.W. merit study and consideration in a world sorely in need of goodwill and understanding between the peoples of the nations. The work and purposes of the individual societies, the business of the executive committee, the reports and findings of the five previous conferences are now a matter of written record. These were reflected at the Sixth Triennial Conference of the A.C.W.W. held in Copenhagen, Denmark, from September 9 to 18, with some 700 accredited delegates and many visitors in attendance. Their content will be subjects of study for the next three years by organizations in the 21 countries represented. So, an ever increasing number of rural women will come to know more and more about the work and thinking of women in other lands.

DENMARK, in very truth, accorded the visitors a royal welcome. Queen Ingrid and Queen Alexandrine lent their patronage and made a personal appearance at the official opening ceremonies in Copenhagen's splendid Town Hall. Queen Ingrid spoke gracious words of welcome and expressed a wish for the success of the conference. On the closing evening King Frederik IX and Queen Ingrid occupied a box in the Royal Theatre and witnessed with the delegates a beautiful production of two ballet numbers. A representative of the newly elected parliament, with its ministers not yet fully named, brought greetings at the official opening as did Mrs. Johanne Dahlerup-Peterson, chairman of the Danish Conference Committee.

A preconference "Get-together Party" was held on Saturday evening previous to the actual opening. The hostesses were 18 Danish members of parliament. On the Wednesday, midweek day of the meeting, all attended a Danes' Day gathering in a huge sports club building known as the K.B. Hall. Here a program of speeches, community singing, music, folk dances, exhibition and sale of handicraft was conducted. The sale of tickets and handicraft and the serving of lunch were intended to defray the expenses in connection with holding the meeting. Mrs. Fanny Jenson, member of the Cabinet, in speaking expressed the hope that the experience of the conference "would be remembered for the rest of your lives. The great common objective of housewives, whatever land they come from, is to be the true center around which the home is built for the good of men and children."

Mrs. Eugenie Anderson, American Ambassador to Denmark, pointed out that today, even more is required of homemakers "than has ever been expected of women in any age. It is no longer quite enough for women to love their families and their homes. Homemakers must also understand and now take part in the world's fight for freedom, if we wish to keep our homes free and secure—and ours. Today's international realities require that the average citizen, including the housewife, in the country as well as the city, first understands what our own freedom means, and then how we as a free people must all work together in the United Nations, in the North Atlantic Treaty organizations and elsewhere. The main hope for the survival of the free democratic nations depends just on this:

Highlights of the Sixth Triennial Conference of the A.C.W.W. held in Denmark show remarkable growth and scope of rural women's organizations

by AMY J. ROE

that every citizen, especially the mothers, understands and imparts to the young, the great preciousness of our common way of life; that every mother imbues her family with the intense faith in freedom necessary to strengthen our democratic civilization."

The Danes with characteristic generous hospitality and warm friendliness tried in every way possible to make visitors feel at home. Some took visitors into their homes for the week. On the



Queen Alexandrine of Norway (right), greets Mrs. Sayre, president of A.C.W.W. on the opening day of the conference.

Saturday evening delegates were guests in Danish homes and there were many glowing reports of the insight and understanding acquired through this close contact with Danish life. The sessions of the conference and the committee meetings were held in Christiansborg Castle, the seat of the King's state apartments and the Danish parliament. The sessions were in English and other nationals showed great patience with this fact. It was only when some particularly important point was needed to be explained that an interpreter was called upon to translate in Danish. Following the conference, tours were arranged throughout rural Denmark to give visitors the opportunity to see country life, visit schools and other institutions outside of the city. It should be remembered that Copenhagen with its suburbs makes up for approximately one-fourth of Denmark's 4,000,000 population.

The A.C.W.W. president, Mrs. Raymond Sayre, of Ackworth, Ohio, is known to and beloved by many Canadians as a result of her visits to Canada. Speaking of her memory of her visit in 1947 to Denmark, Mrs. Sayre put into words a thought that will linger long in memory. "I carried home with me many memories of the beauty of this land, its tidy farms, its neat cottages and the charm of this great and entrancing city of Copenhagen. But I also remembered something else—the bridges—swung across from island to island—bridges that unite the country and bring its stream of life together. These bridges can very well stand as a

symbol of the meaning of the Associated Country Women of the World, for it is indeed our purpose to build bridges of goodwill that will cross the barriers and frontiers of the world and unite us through common understanding. Our bridges are not made of steel and stone—they are the invisible bridges held together by the tender strands of friendship.

"It is true that the world becomes every day a more tightly knit place. Science has bridged both time and space so that we are now one small world where 'no man is an island unto himself' or ever can be again . . . We are linked together by the work of our organization. When people plan together, work together, share ups and downs of a common project, then it is that friendship and understanding grow . . . We build a bridge of understanding by personal contacts, our conference, our letter friends, our exchange visits in other lands. These help us to see other countries not as governments but as people; and other people not as foreigners or aliens but as human beings.

"Everywhere I go in the world I find country people talking about the same things, about: conservation of the soil, their children, gardens, homes and the same problems—how to lighten the work of country women, how to extend the work of their association and most of all, how to find time to do everything that must be done . . . Knowledge can build a bridge of understanding. Trading ideas is as important as trading goods. We need to exchange experiences. Above all else our common moral faith in human brotherhood can build a bridge of understanding . . . In these days of crisis, when the peace of the world is threatened, it is not easy to live up to our beliefs. Fear and doubt enter our lives. Many have lost faith in mankind. Many have lost faith itself. I think that the country woman will not lose faith in this ideal of brotherhood. She lives too close to a world of nature that seems to die each year, but always lives again green and vibrant and triumphant. In spite of all difficulties and dangers she will continue to build bridges of understanding for a common brotherhood."

NO apology is given for stressing the inspirational and personal side of the Sixth Triennial meeting of the A.C.W.W. They will be more readily understood and appreciated by a wide number of readers than will the business which was of particular concern to the organization. It was literally a "working meeting" for those who attended. The delegates, somewhat to their own surprise, were occupied both early and late with meetings, functions and personal obligations. This left little time for shopping or the following of personal interests in one direction or another.

Canada had 39 representatives at the meeting. Out of that number some five or six were English women, who carry Canada's representation on the executive committee, which usually meets in London. Canada had its largest delegation in history to the A.C.W.W. They represented the Women's Institutes of the various provinces, the Cercles de Fermieres of Quebec and the Jubilee Guild of Newfoundland and Labrador, as well as the Federated Women's Institutes of Canada. They traveled as a Canadian party under the leadership of Mrs. E. E. Morton of Vegreville, Alberta, president of the F.W.I.C., with 23 leaving Montreal on August 18 and spending a week in Great Britain before proceeding via Norway and Sweden to Denmark. On board the Empress of France, they had a business session each day, in preparation for the meeting or in consideration of the tour.

In the interim between the 1947 and 1950 conference, the A.C.W.W. has sponsored letter friends between countries, provided speakers for many meetings, published a Who's Who pamphlet on its own leaders; published a book—Cookery Around the World—conducted an essay contest on the Country Woman's Day, arranged international hospitality, and sent garden seeds and food parcels. It has been

(Please turn to page 84)

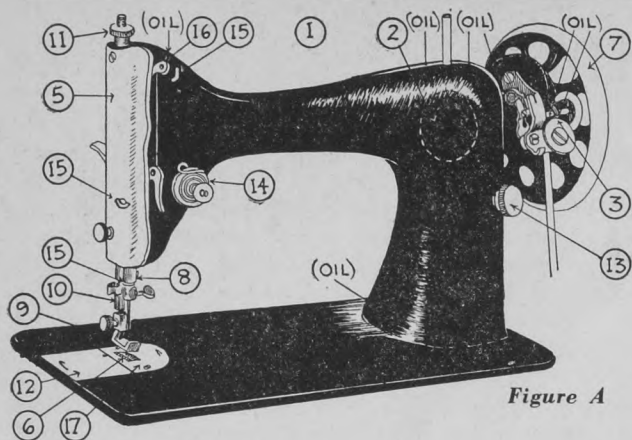


Figure A

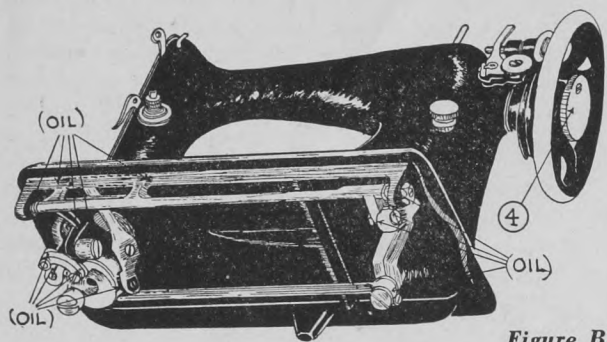


Figure B

MOST women are afraid to move a single part or screw on any of their household equipment. Something may go wrong, they may put a part back in the wrong place or upside down, or there may be an extra piece that just won't fit in anywhere. Such a fear often causes the homemaker to neglect her sewing machine in particular, as it is not used every day and so may not be very familiar to her.

But the sewing machine is specifically the homemaker's piece of equipment. Furthermore, screws were made to be turned and little real harm can be done to a sewing machine by anyone who is able to use it for everyday sewing. An understanding of the parts of the machine which can be removed safely will help the homemaker to service the machine herself. She will also be able to get better work from it at all times.

These directions will guide her in the cleaning and oiling of her sewing machine. No special tools or skill are needed. Read the instructions carefully, study the illustrations, then go ahead. The results will be a machine that runs easily and sews well.

CLEAN it well is a good rule to follow if the sewing machine is giving trouble. Most sewing machine ailments are due to or caused by lack of care in the cleaning and oiling of the machine. Dust, grit, lint and thread collect on the parts of the machine to form, in time, a gummy mass. This may make the machine hard to treadle, sometimes causes it to lock or jam, and it may even skip stitches or break the thread. Do not wait to clean the machine, however, until it refuses to work properly. For the average homemaker a thorough cleaning every one or two years is sufficient, with an extra few minutes spent on it each time it is used, to keep it in condition.

For the main cleaning wait until you have at least two hours when you won't be interrupted. However, do it soon—definitely before starting the fall and winter sewing for the family. Plan to work in the middle of the kitchen floor

or in some other large area, away from the walls and doors. Place newspapers on the floor and against any nearby walls to protect them from oil and solvent. Place folded newspapers, too, in the cabinet space underneath the head of the machine.

The necessary equipment for cleaning will consist of a pie tin for parts and cleaning fluid; a small and a larger screw driver; a knife; a large pin, long needle or stiff piece of wire; a narrow paint brush, sash brush or suitable substitute; a can of sewing machine oil and a small oil can for the cleaning fluid.

You will need about a pint of cleaning fluid. The best type is that obtained from gasoline dealers. Kerosene may be used if cleaning fluid is not available but gasoline *must not* be used inside buildings. Never use gasoline that contains lead.

Remove the spool of thread and bobbin, placing them where they will keep clean. If the machine is electrically operated, cover the motor and wires to protect them from cleaning fluid and oil.

Now remove, in order, the following parts in preparation for cleaning. Place each in the pie plate. Needle, presser foot, slide plate or plates, bobbin case, the throat plate or needle plate, arm plate or cover plate or plates, and the

face plate (figures A and B). Do not take off any other parts.

When removing parts remember that a screw, nut or bolt is turned to the left to loosen. Use a screw driver with a blade as wide as the slot in the screw and use a wrench for nuts and bolts—never pliers. If a screw will not loosen easily, soak with cleaning fluid, then set a screw driver in the slot and tap driver smartly with the hammer.

If the machine is the type that has no face plate, do not open or remove the needle bar housing, which is at the left-hand end of the machine. If the screws holding it are removed, the needle bar and presser bar may separate from the main shaft and fall out.

Clean out all the oil holes, using a sharp-pointed instrument. Squirt cleaning fluid into all oil holes, on all bearings and all other places where one part turns against another. Run the machine, by hand or treadle (not by electric motor), as you clean. If the machine begins to run hard, some dirt has probably rolled and gummed inside a bearing. Continue until all dirt and gummed oil are washed away and the machine runs easily again.

machines have an oil well about one-quarter inch in diameter underneath the shuttle slide plate near the front end of the shuttle race. Take out and clean the wool material that holds the oil in the oil well. Then, with a pin, clean the small hole that leads from the oil well to the shutter race. If the wool is dirty or missing, put a fresh wad of raw wool or wool yarn in the hole.

To clean the tension on the machine pull a piece of cloth soaked in cleaning fluid, and then a dry cloth, back and forth between the disks or surfaces of the tension. Be sure no threads are wedged in it. Unwind or pick out any thread that is wound around the bearings of the handwheel also. They make the machine hard to turn.

If the handwheel does not turn freely without the rest of the machine operating when the bobbin is being wound, clean the clutch on the handwheel. It is the locknut which holds the handwheel tight when sewing (figure D). Loosen the screw (a) in the locknut. Remove the locknut and adjusting washer, then take off the handwheel. Clean and oil the handwheel bearing.

Replace wheel, washer and locknut; then tighten screw (a). Check to see if the handwheel turns freely without running the machine. If not, again remove the locknut, carefully remove the adjusting washer and rotate it one-half turn. Replace the parts and tighten the screw again. Check to be sure the handwheel turns separately.

Now, if you have a machine without a faceplate the needle bar housing may be opened—but only if you have expert assistance. Be especially careful if there is no feed dog on the machine. Brush and clean each part with cleaning fluid then wipe dry. Also clean within the housing. Oil all the parts freely and put the parts back immediately. Do not attempt to clean it, under any circumstances, unless you have some excellent supervision.

A S titch IN TIME

by LILLIAN VIGRASS

Cleaning the sewing machine now will save a repair bill later on. Let these directions guide you in an orderly and thorough clean-up job

Tip back the head and flush the parts underneath. Let it down and run the machine as before.

POUR some cleaning fluid in the pie tin with the parts. Dip the brush in the cleaning fluid and clean and scrub thoroughly all the parts one can reach with the brush . . . the parts within the needle bar housing . . . around the feed works . . . shuttle race and shuttle driving mechanism . . . stitch regulator . . . all bobbin-winder parts . . . the parts under the head of the machine . . . and as far as you can reach inside the arm.

This brushing out and flushing with cleaning fluid may have to be repeated several times before all the lint is washed away from the needle bar housing, the feed and surrounding parts. Scrape away with a knife or screw driver any gummed oil and dirt remaining around the feed dog, shuttle and bobbin case.

Run the point of a fine needle under the spring of the lower tension on the shuttle or bobbin case to make sure no thread or dirt is wedged under the spring.

Some round shuttle machines have a piece of felt in the shuttle race for oiling the shuttle mechanism. Soak this felt with cleaning fluid and brush, but do not remove it. In the long bobbin machine clean the race with a cloth wet with cleaning fluid. Many long bobbin

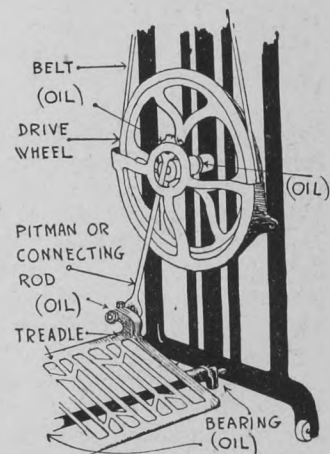


Figure C

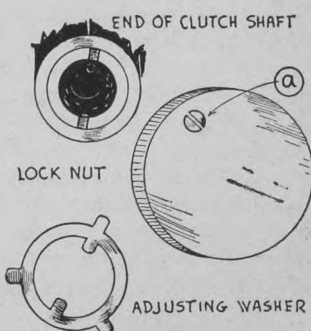


Figure D



*It's Good...
It's Good
For You!*

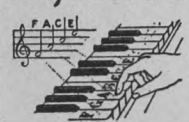
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While the head is drying, clean the treadle mechanism of the machine. Remove all threads and dirt from the bearings—there is usually a bearing at each end of the connecting rod, one or two supporting the drive wheel and several in the driving mechanism (figure C). Squirt cleaning fluid into each and then wipe dry. Oil each bearing, run the machine again, then wipe away the excess oil.

It is best to let the bearings in the machine dry for several hours before oiling. If kerosene was used leave the machine 24 hours or else wash the kerosene from the bearings by using extra amounts of oil.

SQUIRT oil into all oil holes and wherever one surface rubs against another. Use it freely as all the oil has been removed in the cleaning process. Do not oil the tensions. When completed, run the machine to work in the oil thoroughly, then wipe away the excess. Oil the wool or felt that feeds oil to the shuttle race and the wool in the oil hole of the long bobbin machine. On machines with none of these devices wipe a thin layer of oil on the race with your finger.

Now replace all the parts that were placed in the pan. There is no need to force parts or screws into place. If they are in the correct space, they will fit in easily, although tightly. Test the machine, using waste cloth that can absorb the excess oil from the needle and feed works. If necessary, lubricate the motor of the electric machine, but only according to the manufacturer's directions. Too little, too much, or the wrong kind of lubricant can ruin a motor.

If the machine refuses to work properly after cleaning, check first the position of the needle. On most machines the needle should be so set in the needle-holding clamp that the flat edge of the shank faces the shuttle point as it passes the needle.

When the needle is in place, if necessary adjust the upper tension. It is usually not necessary to remove the tensions of the machine for cleaning, but if the upper tension must be removed, lay the parts aside, face up and in order. Clean and replace the parts. Tension disks belong back to back, not lip to lip or spoon fashion.

In adjusting the tensions assume the lower tension to be correct until proved wrong and make all the adjustments on the upper tension. Change the upper tension by slight turns to right or left until the upper and lower tensions are balanced. Then check for too loose or too tight stitching.

If the lower tension must be adjusted it is located on the shuttle or bobbin case and is adjusted by a screw. If two screws fasten the lower tension spring to the bobbin case, adjust by turning the screw nearest the center of the spring. To loosen the lower tension turn the adjusting screw to the left, to tighten turn to the right. Adjust the upper tension to balance and test again.

A few minutes spent in care after use will keep the machine in perfect order. Keep a brush, oil can and cleaning cloths handy. Slip back the slide plates and brush off the lint around the bobbin case and feed. Place a drop of oil in each cup and place a piece of cloth under the presser foot, lowering the pressure bar on it before closing the machine.

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TODD'S SALMON



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Foods for Hallowe'en

To serve at a party or to include in the lunchbox as a special treat

HALLOWE'EN to the youngsters means parties, jack-o'-lanterns, dressing up, bobbing for apples and best of all—plenty of good things to eat.

These Hallowe'en treats are just right for a party or to tuck into a school lunchbox. If they are for a party, let the youngsters help in their preparation—that is half the fun of having a party. But keep the treats as a surprise for the lunchbox.

An old-time idea which is fun at any party is a taffy pull. The taffy is boiled to the hard-ball stage, that is, until, if a half teaspoon of hot candy is poured into very cold water, then shaped with the fingers, the ball so formed will roll about on a cold, buttered plate and will be distinctly chewy.

When the edges of the candy begin to stiffen on the plate, it is time for it to be formed into balls with a spatula. Each couple is given a ball of the candy to pull. These are best pulled by using thumbs and forefingers until, at last, the candy is light-colored and porous. Stretch and twist the candy into a rope, not more than an inch thick. Cut into pieces with the scissors, twisting the rope after cutting each piece.

For popcorn balls, the popping of the corn takes little effort if done in the pressure cooker with the lid on, but *not* under pressure. There is no need to shake the pan. The corn doesn't burn or stick and every kernel pops. Melt a little butter in the pan, then pour in one-third of a cup of popcorn. The corn pops in about five minutes.

White Taffy

2 c. sugar 2/3 c. water
1/2 c. light corn 1 tsp. vanilla
syrup

Put the sugar, corn syrup and water in a saucepan; stir over a low heat until the sugar is dissolved. Boil without stirring until the thermometer registers 268° F. (hard but not brittle ball). Remove from stove; add vanilla. Stir only enough to mix. Pour the mixture onto greased, shallow pans or plates. Pull until light-colored and porous, then stretch and twist into a rope not more than one inch thick. Cut into pieces with scissors.

Popcorn Balls

3 qt. popped corn
1 c. sugar
1/3 c. white corn syrup
1 c. water
1/4 tsp. salt
1 tsp. vanilla

Discard all imperfect kernels and put the popped corn into a large pan. Sprinkle lightly with salt. Cook syrup, sugar and water to 280° F., or until the syrup forms spirals or threads which are brittle under water but which soften when removed from the water and stick to the teeth when chewed. Add flavoring and salt. Pour over the corn, stirring with a spoon so that all kernels will be evenly coated. Shape the corn into balls; lay on waxed paper.

Caramel-Coated Apples

1 c. sugar 1 c. milk
1/2 c. brown sugar 1/4 c. butter
1/2 c. light corn 1 tsp. vanilla
syrup 12-14 apples
1/2 c. cream

Put all the ingredients except the vanilla in a saucepan; stir over low heat until the sugar is dissolved. Increase the heat, stirring constantly until the thermometer registers 246° to 248°, or until a little of the mixture dropped into cold water will form a ball the consistency of a caramel. Remove from stove; add vanilla. Working very rapidly, dip each apple into the syrup, swirling until thoroughly coated. Cool on a well-buttered plate.

Chocolate Cup Cakes

1/2 c. cocoa 1/2 tsp. salt
3/4 c. boiling water 1/2 c. sour cream
1/2 c. shortening 1/2 tsp. baking soda
2 c. sugar 1 tsp. vanilla
2 c. sifted flour 3 egg whites

Mix cocoa in boiling water and stir until smooth. Cool. Cream shortening and sugar together until light and fluffy. Add cocoa mixture. Sift flour, salt and soda together. Add dry ingredients alternately with cream. Beat until smooth after each addition. Add vanilla. Fold in stiffly beaten egg whites. Pour into greased muffin tins. Bake at 350° for 15 minutes. Ice with Orange Frosting.

Orange Frosting

3 T. butter 2 T. orange juice
Sifted icing sugar Pinch salt
as required 1 tsp. grated
1 egg yolk orange rind

Cream the butter and blend in 3 T. sifted icing sugar. Add the unbeaten egg yolk, then the orange juice; combine well. Add a pinch of salt; then work in sufficient sifted icing sugar to make a frosting of suitable consistency. Add grated orange rind and, if desired, tint with orange food coloring. Beat very smooth and spread on cup cakes.

Toasted Cheese Squares

12 one-inch squares of day-old bread
4 T. butter
1 c. grated Canadian cheese

Spread bread cubes on 5 sides with some of the butter, softened. Roll in the grated cheese and arrange, unbuttered side down, on a cake rack or flat cookie sheet. Broil or bake for about 2 minutes, or until cheese is melted and delicately browned. Makes one dozen.



Bobbing for apples gives everyone a hearty appetite.



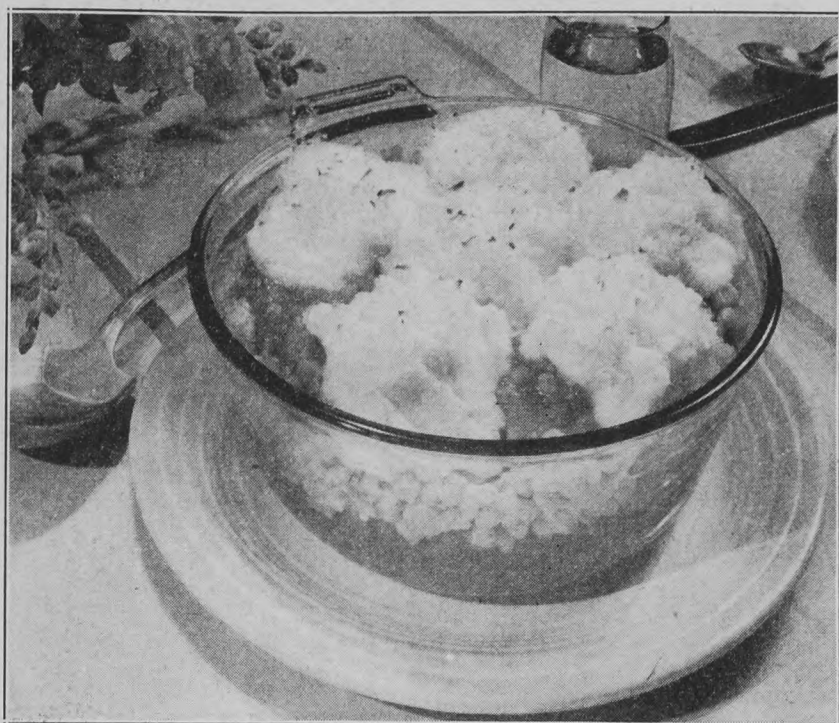
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Meat Pie Specials

Penny-wise and easy to make, any one of these meat pies will make a delicious supper



This Shepherd's Pie will make a delicious, one-dish supper.

SAVORY meat pie, a budget-wise dish that will satisfy the heartiest of appetites, is a perfect supper on a chilly autumn day.

Add vegetables, as desired, to yesterday's leftovers, or to a less expensive cut of meat, and cover with a tender crust or topping. While the top of the pie is browning in the oven, make a salad or prepare a plate of relishes and cold pickles, and put the finishing touches on the meal. Then supper is ready.

Variation in toppings, as well as meat and vegetables, will produce a whole new group of suppers that are different and sure to please. Plain pastry and biscuit are the best-known toppings, but equally good are the fluffy, mashed potatoes piled high on the Shepherd's Pie and the crusty cornbread strips on the more highly seasoned ground-meat pie.

Steaming hot and temptingly browned, each meat pie makes a delicious supper; yet it is easy to make, to bake and to serve.

Pork Pie

- | | |
|-------------------------|------------------------|
| 1½ lbs. cubed lean pork | 1 small onion cut fine |
| ½ bay leaf crushed | 3 T. flour |
| 1 c. sliced carrots | ¼ c. cold water |
| ½ c. sliced celery | 3 cooking apples |

Combine pork, bay leaf, carrots, celery, onion and add hot water to cover. Season with salt and pepper; cover and simmer until meat is tender. Drain liquid from meat, which should measure 2½ to 3 cups. Thicken liquid with paste made of flour and cold water, and cook one minute. Pare apples and slice thin. Place alternate layers of pork mixture and apples in a deep baking pan, or dish, and pour over thickened stock. Place in hot oven while making biscuits (Use half biscuit recipe). Arrange biscuits over top of boiling mixture; return to oven and bake 25 minutes in hot oven (450°).

Chicken Pie

- | | |
|------------------------|------------------------------|
| ½ c. chopped celery | ¼ c. flour |
| ½ c. tiny whole onions | 1 T. lemon juice |
| 2 c. chicken stock | 3 T. chopped parsley |
| 3 c. chopped chicken | ½ c. sliced canned mushrooms |

Cook celery and onion in small amount of boiling, salted water; drain. Heat 1½

cups stock to boiling. Blend flour with remaining stock; stir into hot stock. Cook until thick and smooth, stirring constantly. Add remaining ingredients. Season to taste. Pour into 1½-quart casserole. Top with rich pastry. Brush pastry with egg. Bake in hot oven (450°) 20 minutes.

Roast Beef Pie

- | | |
|----------------------------------|----------------------------|
| ½ c. minced onion | 1 c. sliced cooked carrots |
| ½ c. minced celery | 2 T. chopped parsley |
| 2 T. fat | 1 T. Worcestershire sauce |
| 2 T. flour | 1 tsp. salt |
| 2 c. cubed leftover beef or pork | ½ tsp. pepper |
| 1 c. diced cooked potatoes | 1 c. leftover gravy |

Cook celery and onion in hot fat until golden. Stir in flour. Add remaining ingredients. Simmer 10 minutes. Pour mixture into well-greased, individual baking dishes, or a casserole. Cover with plain pastry made with 1 cup of flour. Brush crust with slightly beaten egg white. Bake in hot oven (425°) 25 minutes.

Fish Pie

- | | |
|----------------------|--------------------------|
| 1¼ c. diced potatoes | 1 pimento, cut in strips |
| ¼ c. diced celery | ¾ tsp. salt |
| 1 T. chopped onion | ½ tsp. pepper |
| ¾ c. cooked peas | ½ c. vegetable liquor |
| 1 c. cooked fish | 1 T. flour |

Cook potatoes, celery and onion in small amount of salted water until tender. Drain. Reserve ½ cup liquor. Combine vegetables and flaked fish. Pour into greased, one-quart casserole. Add seasonings. Gradually add vegetable liquor to flour, and blend. Pour over fish and vegetables. On top, arrange pinwheel cheese biscuits made from a half recipe of your favorite biscuits. Roll ¼-inch thick; sprinkle with ¼ c. grated cheese. Roll as for jelly roll. Cut ½-inch slices. Bake in hot oven (400° F.) 20 minutes.

Shepherd's Pie

- | | |
|-------------------------------|---|
| 1 lb. veal breast or shoulder | 1 c. cooked carrots, cut in one-inch sticks |
| Salt and pepper | 2 to 3 c. moist, mashed potatoes |
| 2 T. fat | |
| ½ c. sliced onion | |
| 1 c. green beans | |

Cut meat in 1½-inch pieces, flour and season; brown on all sides in hot fat. Add 2 to 3 cups of water. Simmer until tender (1 to 1½ hours). Add vegetables.

a family favorite
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spicy rich, piping hot
CINNAMON BUNS



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these are easy to make

It's bound to be a "Good Morning"—when you serve delicious, hot-and-fragrant Cinnamon Buns for breakfast. They'll win you plenty of praise... made with Fleischmann's Royal Fast Rising Dry Yeast!

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Modern Fleischmann's Royal Fast Rising Dry Yeast keeps for weeks and weeks right on your pantry shelf. It's fast—it's ACTIVE. All you do is:

1. In a small amount (usually specified) of lukewarm water, dissolve

thoroughly 1 teaspoon sugar for each envelope of yeast.

2. Sprinkle with dry yeast. Let stand 10 minutes.
3. THEN stir well. (The water used with the yeast counts as part of the total liquid called for in your recipe.)

Next time you bake, insist on Fleischmann's Royal Fast Rising Dry Yeast. Keep several weeks' supply on hand. There's nothing like it for delicious soft-textured breads, rolls, dessert breads—such as all the family loves!

CINNAMON BUNS

Makes 2½ dozen

Measure into large bowl

- 1 cup lukewarm water
- 2 teaspoons granulated sugar

and stir until sugar is dissolved.

Sprinkle with contents of

- 2 envelopes Fleischmann's Royal Fast Rising Dry Yeast

Let stand 10 minutes, THEN stir well.

In the meantime, scald

- 1 cup milk
- Remove from heat and stir in ½ cup granulated sugar
- 1¼ teaspoons salt
- 6 tablespoons shortening

Cool to lukewarm and add to yeast mixture;

Stir in 2 well-beaten eggs

Stir in 3 cups once-sifted bread flour

and beat until smooth; work in

3 cups more once-sifted bread flour

Turn out on lightly-floured board and knead dough lightly until smooth and elastic. Place in greased bowl, brush top with melted butter or shortening. Cover and set dough in warm place, free from draught. Let rise until doubled in bulk. While dough is rising, combine

- 1½ cups brown sugar (lightly pressed down)
- 3 teaspoons ground cinnamon
- 1 cup washed and dried seedless raisins

Punch down dough and divide into 2 equal portions; form into smooth balls. Roll each piece into an oblong ¼-inch thick and 16 inches long; loosen dough. Brush with melted butter or margarine. Sprinkle with raisin mixture. Beginning at a long edge, roll up each piece loosely, like a jelly roll. Cut into 1-inch slices. Place just touching each other, a cut-side up, in greased 7-inch round layer-cake pans (or other shallow pans). Grease tops. Cover and let rise until doubled in bulk. Bake in moderate oven 350°, 20-25 minutes. Serve hot, or reheated.





"It takes so little time to gain a softer, smoother, clearer-looking skin with the new Noxzema 'Home Facial'," says attractive Patricia Pottinger of Victoria. "It's such a help, too, in clearing up occasional blemishes. I use Noxzema every day!"

LOOK LOVELIER IN 10 DAYS OR YOUR MONEY BACK!

Skin Specialist develops new home beauty routine—helps 4 out of 5 women in clinical tests

● Practically every woman has some little thing wrong with her skin. If you're bothered with dry rough skin, annoying blemishes . . . here's news!

A skin specialist, using one cream—medicated Noxzema—has developed a New Home Beauty Routine. In clinical tests it helped 4 out of 5 women. Here is the 4 Simple Step Routine.

Morning—1. "CREAMWASH WITH NOXZEMA." Apply Noxzema all over your face. With a wet face cloth actually wash your face with Noxzema—as you would with soap. Note how clean your skin looks and feels.

2. After drying face, smooth on a protective film of greaseless Noxzema as a powder base.

Evening—3. Before retiring, again "CREAMWASH WITH NOXZEMA." See how easily you wash away make-up, the day's accumulation of dirt and grime—how really clean it leaves your face.

4. Now massage Noxzema into your face. Pat a little extra over any blemishes to help heal them. Noxzema is greaseless—no messy pillow smears!

Remember—this new "Home Facial" was clinically-tested with amazing results! The secret? First, Noxzema is a greaseless cream. Secondly, it's Noxzema's medicated formula—in a unique oil-and-moisture emulsion!

Money-Back Offer! So sure are we that Noxzema's results will delight you, we make this sincere money-back offer. Tonight—start using this New Home Facial. See if your complexion isn't lovelier-looking in 10 days. If not completely satisfied return the jar to Noxzema, Toronto, Canada—your money cheerfully refunded. But you will be delighted! Get Noxzema now while you can get a big 93¢ jar for only 79¢.



"Long as I can remember, I've used Noxzema," says Sally Rhynas of Toronto. And her soft, smooth complexion shows it! Sally adds, "Noxzema brings a lovely 'glow' to my skin, too!"

"Dry skin was a real problem until I used Noxzema," says lovely Nina Blanchard of Toronto. "Now I use Noxzema every morning and night—as a powder base and an overnight cream."



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OFFER**
Big 93¢ Jar of
NOXZEMA
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Canada

Transfer to casserole. Top with border of mashed potatoes. Brush with an egg yolk mixed with 1 T. cream. Brown in moderate oven (375°) 30 minutes.

Hot Tamale Pie

1 large onion chopped	3 T. chili powder
1½ lb. ground beef	¾ c. chopped, ripe olives (if desired)
1 can tomato soup	¾ c. fresh or canned corn
1 tsp. salt	
½ tsp. pepper	

Brown onion and meat in hot fat; add remaining ingredients. Pour into greased casserole; cover. Bake in moderate oven 1½ hours (325°). Spread cornbread topping in strips on mixture. Bake uncovered in hot oven (425°) 25 minutes.

Cornbread Topping

Sift ½ c. flour, 1 tsp. salt, 1 tsp. baking powder and ½ tsp. soda into mixing bowl. Add ¾ c. cornmeal and mix well. Add ½ c. buttermilk and 1 beaten egg; then 2 T. cooking oil. Mix well. Spread in strips on top of a highly seasoned meat pie.

A Kitchen Hanging Garden

by WALTER KING

A FEW old vegetables, moisture, warmth, and light, and there is your indoor garden! Soil is not really necessary to make some plants grow, you will soon discover when you try these new foliage plants.

First of all try this novelty carrot fern. Get a large carrot, the older the better, and cut about two inches off the top. Turn this top portion upside down and scoop out the interior with a knife or spoon leaving only a shell about one-quarter inch in thickness. Then bore two holes near the top of the shell and through these tie strong cords so that the carrot top can be hung up. Fill the carrot top with water and hang your plant in front of a window where it will be quite warm and where it will get plenty of light. What happens? Wonder of wonders! The carrot sends out beautiful green feelers and leaves so thick that before many days go by the red part of the carrot will be almost entirely covered over with the bright green foliage.

The tops of turnips, beets, and parsnips will also grow leaves quite quickly if placed in a dish which is kept moist with a shallow layer of water. Warmth and sunshine, of course, are very necessary for fast growth. The shoots from beet tops often turn out to be a very pretty pink shade. Place these alongside the vivid green leaves sprouting from the turnips or parsnips and you have a really pretty fern garden sprouting out of a few old vegetable tops. Isn't nature wonderful?

Another form of hanging garden is a grass sponge. To make this, hang up a moist sponge in the window. Sprinkle on it about half a thimbleful of grass seed. Two or three times daily give the sponge a good drink of water so that it is kept moist. Hold a pan under the sponge as you water it and until all extra water has stopped dripping off. In a few days' time the grass will be sprouting out in all directions making first a spiky sort of green sponge and then a tousled head with green hair.

After your indoor garden is well under way take a plant or two over to a sick friend. An invalid always likes to know someone is thinking of him and you may be sure your novelty will create a new and cheerful interest in the world about him.

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DISTINGUISH between your baby's cry of pain and cry of temper. The "pain cry" should have instant attention. For the feverish distress due to gas on stomach or bowels or those common digestive upsets, give Baby's Own Tablets at once. Mrs. May Mundy, of Toronto, finds they work every time.

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The Refrigerator to Buy

Some of the points to consider in the purchase of your new 'frig

ELECTRIC power is slowly making its way into a large number of rural homes on the prairies. Even before the power is actually "in," the homemaker begins to look forward to the new equipment she can now have in her home, the equipment that will save her time and energy, save her many steps each day, and that will leave her extra time from her daily chores, to be spent in more pleasant work in the home.

One of the first major appliances to be purchased in many homes will be a refrigerator. If you plan on buying one, spend some time reading about and discussing the best type of refrigerator to buy before making the actual purchase. Talk with neighbors and friends about the kinds they have. Knowledge of what to look for and time spent in shopping around will be well worth the effort. Consider the refrigerator which is easy to use and is adaptable to the needs of the family as well as one that will remain at safe refrigerating temperatures, even under hot and humid conditions; that will operate efficiently and inexpensively and will last for many years.

Among the more important features to consider are: the type of refrigeration unit, amount and kind of storage space, the over-all construction, insulation, finish, shelf and space flexibility, and ease of cleaning. Other special convenience features will probably be emphasized by dealers of different models and makes. Each special feature has its advantages, but remember that it also adds to the cost and makes no difference in the actual operation of the refrigerator. One will probably want some special features because they will help in making better use of the refrigerator; but do not be carried away by an overenthusiastic salesman who emphasizes, chiefly, the convenience features of his product. Whether or not they are worth the extra cost depends on one's own particular needs, her likes and dislikes. If, before going shopping, the homemaker has a definite idea of what she wants in a refrigerator, she is likely to get lasting satisfaction and greater returns from her investment.

IN all mechanical refrigerators, refrigeration is based upon two fundamental laws: (1) When a liquid changes to vapor or gas, heat is absorbed; and (2) when the vapor is again liquified, it gives off the heat it has taken up. Electricity supplies the energy to start and maintain this cycle.

The refrigerant first used was liquid ammonia. When the pressure is removed from the liquid, it is changed into a gas, using up heat, and the air is cooled within the refrigerator. With pressure, the ammonia again becomes a liquid and heat is given off into the outside air. Today, the refrigerant used is no longer ammonia, but the same principles apply.

The essential parts of the cooling unit are the compressor, the expansion valve, evaporator and connecting pipes. The compressor increases the pressure on the refrigerant, as it goes from the evaporator to the condenser, raising the temperature of the fluid.

The air circulating around these coils takes away enough heat to condense the refrigerant. The high pressure in the condenser forces the liquid through the expansion valve and into the cooling coils, where the liquid is vaporized by the absorption of heat from inside the refrigerator. Heat from food and air within the refrigerator goes into the refrigerant in the evaporator, thus lowering the temperature and refrigerating the food. The compressor removes this gas from the evaporator and forces it into the condenser, as before, where heat is lost and given off into the room—thus the cycle is completed.

The cooling system of most modern refrigerators is hermetically sealed. The motor and compressor are within the same housing, and the whole system is so connected that there is no possibility of leakage. Oiling of the motor by the homemaker is thus entirely eliminated.

In the older, more conventional system, the motor and compressor are separate, and are connected by an exposed belt. There is a tendency for the refrigerant to leak out and for air, probably containing moisture, to leak in. This type, however, lends itself to easy servicing in the home, whereas with the hermetically sealed unit, if it did get out of order, must be returned as a whole to the manufacturer. However, this seldom, if ever, happens.

The condenser is the part of the mechanism which releases the heat into the air of the room when the refrigerant is liquified. It may be located in the machinery compartment, in the lower part of the refrigerator, or it may be at the back of the refrigerator. Wherever they are located, the flat-plate type condenser coils require less care than the finned-tube type, as the latter gather dust and so need to be cleaned every few months.

The evaporator or cooling coils which surround the freezing compartment at the top of the refrigerator, occupy about five per cent of the space within the box. Here, ice cubes are made, or small quantities of frozen food retained for several hours. The frozen food compartment must maintain a temperature of 20 degrees F. for satisfactory storage.

A new construction is now available, which is usually referred to as the "coldwall construction." In this construction the cooling coils are concealed behind the walls of the entire main storage space. This does away with the need for frequent defrosting. The whole walls are moist, so that foods do not tend to wilt or dry out rapidly, and may be left uncovered; odors do not linger in this very cold and very humid atmosphere. These advantages of the coldwall construction are accompanied by some disadvantages. The walls may tend to become too moist for contact with food; water, condensing on the walls, drains into a pan which must periodically be cleaned; the occasional defrosting may be more difficult than the more frequent defrostings on the exposed-coil models; and costs are higher. In this model, a separate set of coils sur-

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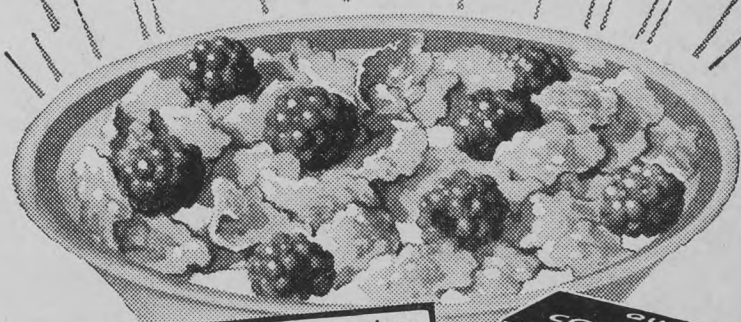


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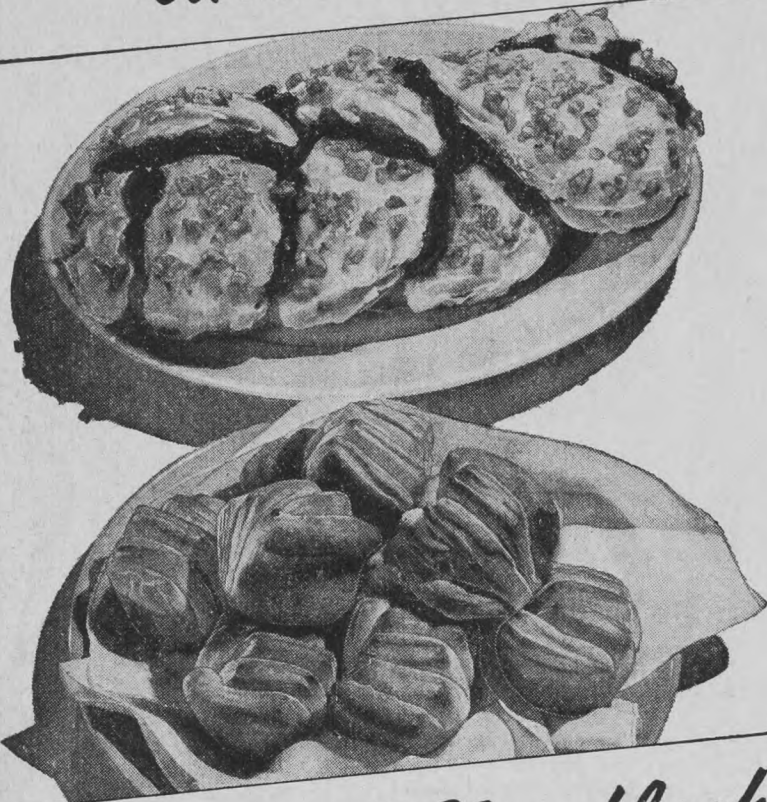
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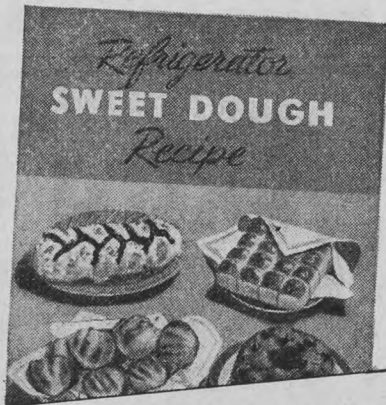


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round a frozen food compartment, and so a temperature as low as zero degrees Fahrenheit is possible. In this temperature frozen foods can be kept for six months. If, however, the temperature goes no lower than 10 to 15 degrees, foods can be kept only a week or so.

The warmest section of the refrigerator is that through which the air circulates last, before passing over the unit, and is usually the lower section of the storage space. The temperature here should not be over 50 degrees F. It is rarely higher than 45 degrees in the recent models. It is important to know the maximum and minimum temperatures which a refrigerator will hold under varying temperatures. Discuss the matter of temperature and relative costs with the dealer.

The efficiency of a refrigerator depends largely upon the kind and amount of insulation which is between the outer wall and the lining. Experiments have shown that 80 to 90 per cent of the heat which gets into a refrigerator comes through the walls. Good insulation, therefore, is true economy. Refrigerators must have at least three inches of insulation. Glass or mineral wool insulation is believed likely to preserve working efficiency longer than the wood fibre kind.

Doors should be regarded as part of the wall and should have the same insulation. A rubber gasket on the outer edge of the door makes it fit more closely. Non-sagging hinges are essential. To test the tightness of the door, on each side insert a sheet of paper and close the door. One should not be able to remove the papers easily. When buying a refrigerator it is well to remember to choose one in which the door-opening is on the side nearest the kitchen cabinet or work table.

The cabinet may be made of all steel, or it may have a wooden frame with metal inside and out—either is quite satisfactory. Baked-on synthetic enamel and one-piece porcelain enamel interiors are very satisfactory finishes. They are smooth, easy to clean and keep the refrigerator from absorbing odors. They will not crack, chip or peel if treated with ordinary care. But remember that porcelain enamel will chip from a heavy blow. The hardware should be of good quality, non-rusting material.

Choose a refrigerator that is large enough to serve your needs for at least the next 10 years. The size of the storage space you need depends upon the kind of food you most often store, how much frozen foods and ice cubes you use, how often you buy and prepare food, and the size of your family. A family of two needs at least a six-cubic-foot refrigerator; for each additional two persons, add an extra cubic foot. Add extra size, also, if you plan to entertain large crowds, or if you wish to use the refrigerator for cooling large quantities of foods such as milk or cream for shipping. One family I know bought a small restaurant-size refrigerator so that all the milk and cream produced on the farm could be stored in the refrigerator. The difference in operating cost between an eight and a 10-cubic-foot refrigerator, for example, is almost negligible, so don't skimp on size.—L.V.

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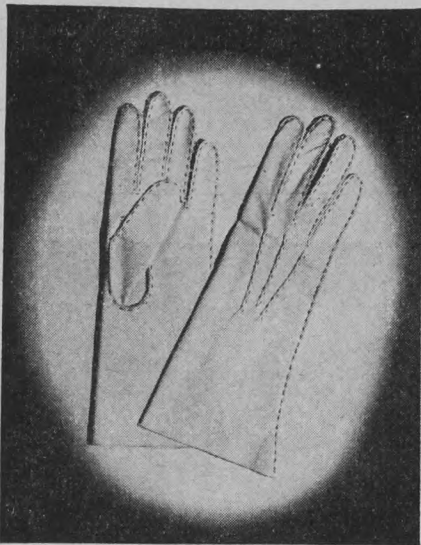
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To Make Hair Shine

Prepermanent care gives added beauty to a new wave

by LORETTA MILLER

WHETHER you decide to give yourself a permanent wave or to have it done professionally, a series of treatments to your hair and scalp will make your wave lovelier, your hair more lustrous, and your scalp healthier. Naturally, before even attempting to give yourself a permanent, it is advisable to read and study the directions that come with whichever brand of permanent wave you intend to use. Then, when you are sure that your hair is in proper condition, follow each step of the directions to the letter. Do not vary the application of waving lotion, cream, neutralizer or any of the ingredients one iota, and do everything suggested in the directions, whether or not you understand them.

If Your Hair Is Dry

Overexposure to summer sun may leave the hair dry and harsh, and the ends of the hair split. A permanent given on such hair without first attempting to replace the oils lost during the summer may result in a strawlike permanent. But just a few simple treatments can overcome the prepermanent harshness and assure a soft, natural-looking wave.

Using a clean brush with fairly stiff bristles, brush the hair vigorously. Press the brush firmly enough so that the action of the bristles can be felt on the scalp. This stirs up the circulation and makes the scalp tingle. It also stimulates the action of the oil ducts

so that the dry hair, caused by sluggish oil ducts, is given its regular quota of oil. Brush from the nape of the neck upward to the top of the head. Brush from just in front of your ears back to the center crown of your head. Brush the hair backward, forward and upward until your scalp tingles and grooms.

When your hair has been thoroughly brushed, place the cushions of your fingers against your scalp and rotate them, describing little circles and being sure that the scalp moves with the action of your fingers. Begin at the nape of your neck, then gradually move upward, repeating the rotating massage movement every two inches. Go over your scalp with this massage. Then brush your hair for a minute or two.

Now feel your hair. You will notice that it seems softer. The brushing and massage have acted as exercise and your hair is actually more pliable. If your hair grows slowly, the chances are the ends of the hair are split, and close examination will reveal two or three ends to each hair. But a series of treatments, a little trim and a new permanent will certainly work wonders. In addition to brushing and massaging, it is well to make an application of hot oil directly to the hair ends.

If Ends Of Your Hair Are Split

Place a little pure olive oil in a dish and set in hot water (or use the

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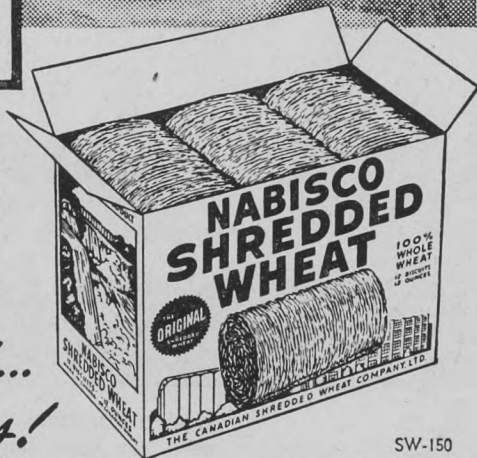
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SW-150

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top of a small double boiler). Use a pad of cotton for applying the hot olive oil directly to the hair ends. Of course, if your scalp feels dry too, by all means make an application of hot oil directly to it. Occasional applications of hot oil will prove beneficial to any type or condition of hair, and are especially recommended before a permanent.

When oil has been applied, wring out a heavy towel in hot water and wrap it turban-fashion around your head. The latter is not absolutely essential to the success of this treatment, but it is suggested as a hastening process. However, if you begin in time and can give yourself a hot oil treatment once each week for a month before giving yourself a permanent, it



Wanda Hendrix finds regular care reveals the highlights in her softly waved hair.

won't be necessary to apply a hot towel. In any event, the oil should remain on for half an hour. A thorough shampoo, followed by the same thorough rinsing, will remove all oil.

Allowing the oil to remain on for one hour is as effective as letting the oil remain on overnight. The hair and scalp will absorb as much of the oil in 45 minutes to an hour as they ever will.

To Trim Your Hair

Trimming off the extreme ends of the hair before giving yourself a permanent is suggested by many professionals. Even if the hair requires cutting, it is well to do it in two stages: once before the permanent, and again after the permanent. This process is advised particularly if you want only a soft suggestion of an end curl and a soft, natural-looking wave.

Follow directions for giving yourself a permanent! If you are not certain of your hair or just how long the waving process should last, take a test curl.

If the ends of your hair seem a bit tighter and curlier than you like, follow the prepermanent treatments for one week after the permanent. And don't fail to brush your new permanent. Remember that a permanent wave cannot be washed or brushed out of the hair. Permanently waving the hair gives it the identical structure of naturally curly hair, and the hair should be treated as such.

Train your hair and your new permanent. Do up your hair every day for a week, if necessary, to teach it to follow specified lines. Pamper your new permanent to soften it and it will repay you by adding new fall beauty to your coiffure.

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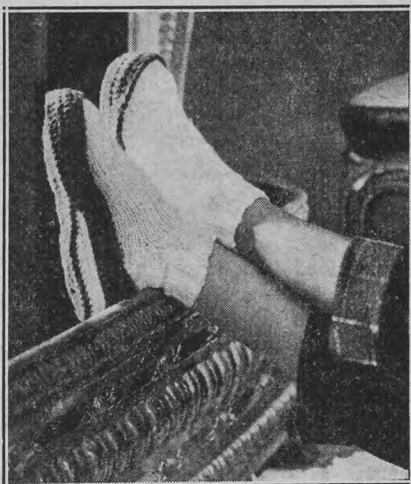
Smart Ideas for Fall

that are fun to make and fun to give

by FLORENCE WEBB

Friendship Sampler

Done on fine linen, this cross-stitch sampler is a lovely wall decoration for modern homes. The work may be done in all delft blue or in colors, as desired. We like it in blue, with a wide blue mat inside the frame. Nice for a guest room, hall or living room. It also makes a much appreciated gift. Stamped on ivory linen, measuring about 12 by 15 inches, complete with working chart, 75 cents. No. 865. Threads (state color) 20 cents extra. Embroidery needles five cents per package.



Design No. K-123.

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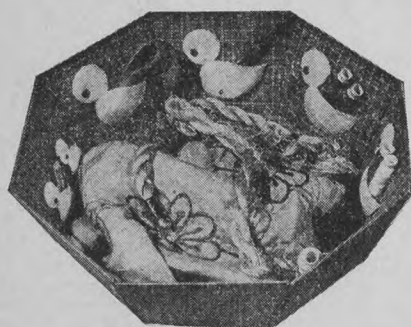
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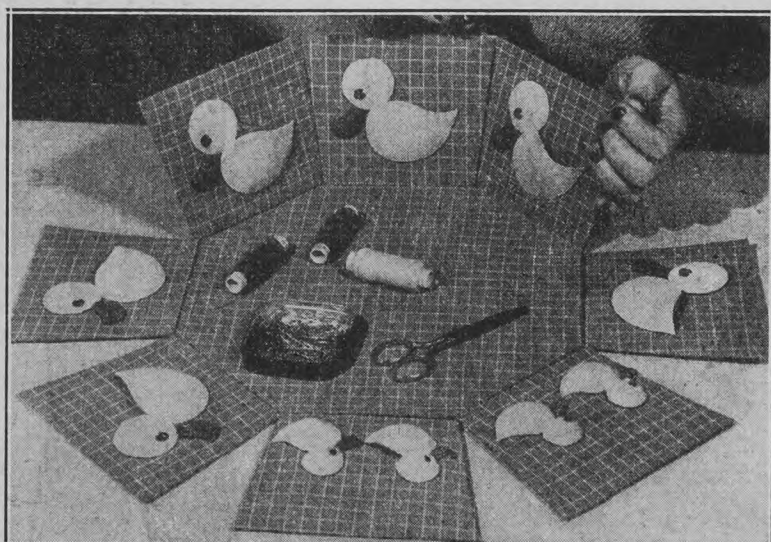
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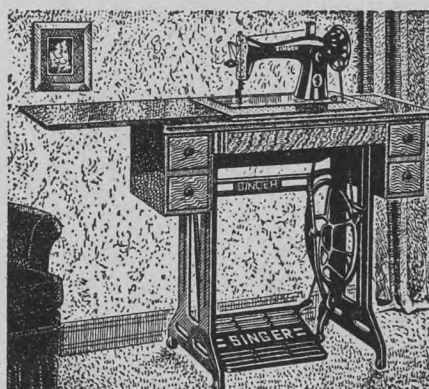
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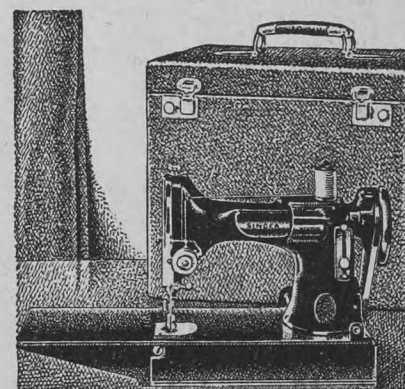
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No matter what sort of work you do, crisp, clean clothing gives your spirits a lift. The very fact that you feel comfortable in fresh clothes helps to build your morale, wards off fatigue, and enables you to do a better job.

Part of the attractiveness of newly washed garments is the result of drying in the sunshine and fresh air. As the sun's rays strike the moist fabrics, the oxygen in the air forms a substance called ozone, which acts as a bleach and adds a certain fragrance to the wash.

But sunshine and prairie breezes alone will not make you sniff the laundry with pride. Clothes to be really attractive need to be washed according to the best methods, using products of the highest quality.

If you could compare clothes washed week by week in slough water, with garments never laundered in anything but melted snow or pure rain water, you would notice not only a contrast in the color of the two lots, but in odor as well.

Slough water is loaded with minerals and even when strained is a poor color. Today few people rely on sloughs, but many depend on wells containing iron and other minerals which leave their mark on the laundry.

Even in cisterns, hardness may be picked up from the cement and if the water has been standing a long time,

it becomes unsuitable for laundering on account of its color. Avoid trouble by installing a filter to keep leaves and dust from entering the cistern and have it thoroughly cleaned out once a year at least.

When you have to depend on hard water, you have two choices. You can use soapless detergents which perform well regardless of minerals. They are wonderful for silks and woollens and other fine fabrics. Their main disadvantage is that they do not wash cottons and linens as satisfactorily as soap.

If the bulk of your laundry consists of cottons and linens, soap is the thing to use, but you must soften the water first. If you don't, the minerals will combine with the soap and produce grey curds which will attach themselves to the fabrics and spoil that fresh, clean smell.

Of course some people keep on adding soap until they produce suds, or they buy washing powders containing a large proportion of softener. Either is poor policy. Soap by itself is an expensive softener. Washing powders are costly too, because they frequently contain a limited amount of

real soap. The rest may be cheap chemicals. Why pay soap prices for these?

The best and cheapest way to deal with hardness is to soften the water before adding a speck of soap. Washing soda or Trisodium phosphate can be purchased cheaply from the hardware. These act on the minerals and leave the water fit for soap.

Allow 15 minutes for the chemical to do its work, remove the scum that rises to the top and if there is sediment, pour off the clear water and throw away what remains. Once the water is rid of the troublemakers, it will clean clothes more completely.

It is important to soften the rinses too. Unless this is done, the soap suds clinging to the clothes will be attacked by the minerals in around 60 seconds. The scummy curds formed will accumulate in the meshes of the fabrics and make them harsh and unattractive.

Hot water rinses more thoroughly than cold, so make a point of saving enough for at least the first rinse. If soapy garments are wrung direct from hot suds into a cold rinse, the sudden lowering of the temperature contracts

the yarns and causes them to retain the soil-laden suds, instead of giving them up.

FROM this, it is easy to see that the key to a first-rate washing job is thorough and complete rinsing. Soap is essential but only in the machine. In the form of suds it wets the material, gets between the fabric and the particles of dirt, and holds them in suspension until flushed out by rinsing.

Unless rinsing removes all the soap, it is quite possible for suds holding particles of soil to pass right through to the finish. The clothes will not be really clean and will show it.

Rinsing is equally important when using soapless detergents because no wringer is capable of removing every trace of the wash water from the clothes. The water in the machine holds not only particles of dirt but frequently bacteria as well, so it is clear that if rinsing is skipped the clothes will not be clean.

The only way to turn out a wash that is really clean is to flush out every trace of soiled water. One rinse is not enough to do a good job; two are fairly efficient; but three are better still. There is no doubt that more rinsing would be done if unlimited water could be drawn from a tap.

Shortage of water sometimes leads to using the wash water for too long. This is poor policy since the soil held by the suds becomes deposited on the

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clothes and gives them a greyish cast. Even good soap will not be effective beyond a certain point.

Quality in soap has an influence upon the attractiveness of the laundry. Low grades frequently develop rancidity while stored in the warehouse. Dark bars contain materials that impart a disagreeable smell to the clothes. If fats reclaimed from slaughtering are used in homemade soap, the product is sure to be inferior.

Changing garments before they have a chance to become heavily soiled is important. Ordinary soil consists of surface dust mixed with perspiration and oil from the skin. A thin coating on the surface of a fabric is easily removed in the machine, but if additional layers are allowed to build up, the job of cleaning is harder.

Dirt of any kind, if allowed to become ingrained, becomes bound to the yarns so that no amount of rubbing can dislodge it. From this it is easy to see that many things affect the attractiveness and freshness of laundered clothing.

Countrywoman

Continued from page 71

granted status as a non-governmental body on such important organizations as F.A.O. and UNESCO, and thus has direct contact with the United Nations. Just to list the important meetings to which its representatives have been called in during the three-year period would occupy much space. As the president pointed out in her report, "the role of the A.C.W.W. as a non-governmental organization having consultative status with United Nations is twofold. First there is the responsibility of keeping in touch with the work and for putting the full force of public opinion behind it. The acceptance of this new responsibility has definitely changed the character and the nature of the organization.

At first it depended on leadership rather than structure to keep the organization working. Mrs. Sayre rightly asked: What kind of an organization do we really want to be? and pointed out that a choice had to be made between an organization for action in the international field or being a clearing house for discussion and exchange of opinion and mutual help. In an international organization the answer is not a simple one to satisfy all concerned.

At the present time a history of the A.C.W.W. is being prepared and it will bear a suitable foreword as a memorial dedicating it to Mrs. Alfred Watt, who did so much to spread the work of the organization.

Mrs. Sayre was the unanimous choice for president of A.C.W.W. for the next term. Canada's delegates were happy and proud that Mrs. E. Morton led the list in votes for vice-president and that she will be on the executive for the next term. Both Canada and Australia offered invitations for the conference to meet in 1953. The actual choice was left to the executive committee.

At the present moment of writing the Sixth Triennial Conference has closed and the delegates are dispersing to their homes or planning sight-seeing tours in other countries. The discussions and the speech-making are over but there are many grateful and pleasant thoughts of Denmark and Danish people in their minds.

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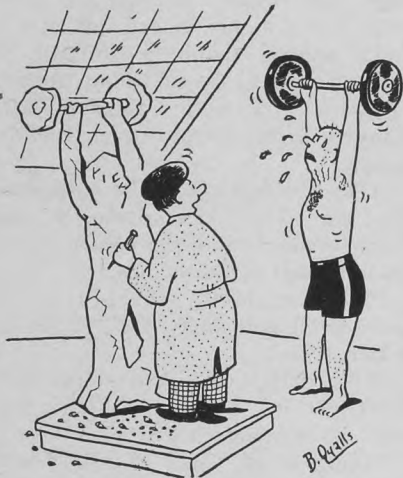
Call Me Cupid

Continued from page 12

it's because of your blarney, either."

Jim settled himself comfortably in the seat beside her. He couldn't help giving a faint sigh of relief. After all, he was 70, felt it, too, now and then.

"Seriously, though," she said with an old-fashioned air of severity which didn't seem to fit her youthful prettiness, "it's a dangerous habit, walking in the middle of the road . . ."



"Smile!"

"I know it, but I was worried I guess."

"You were?" Her voice was warm and sympathetic. "I don't suppose it's anything I could help . . .?" At Jim's startled glance she blushed and said, "I—I'm the new district nurse . . . Kay Reynolds . . . I'm stationed at Wexford . . . If—if there's anything I can do . . . that's what I'm here for . . . to help."

Jim stared at her. She was small and sweet and her clear blue gaze was frank and unaffected.

"No! I'm afraid it's . . . there's nothing you can do," he said, and his old eyes were worried as they looked blankly out along the country road which slipped past them.

And then suddenly his thin shoulders straightened and he sat up, his grey eyes bright and eager again.

"Dang me for a silly old fool!" he said, and one wrinkled brown hand smacked into the other. "Dang me, but I believe you might be able to help at that. Maybe you're just what we need!"

The blue coupe squealed to a stop in front of Andrews' store at the crossroads.

Jim got out. "Thank you very much," he said. "I'll surely get in touch with you one of these days, that's if you meant what you said about helping."

"That's what I'm here for," she said simply, "and don't walk in the middle of the road again. Wexford 4 will find me or, at least, I'll get any message . . ." With a flash of her bright blue eyes and a gay wave of her hand, she drove away, leaving old Jim standing and staring after her with a bemused expression on his wrinkled brown old face.

"Well, I'll be danged," he muttered. "Right out of the blue! Right out of the blue comes just what I've been praying for. 'Anything I can do to help?' she says. Now, Jim Taggart, this is something you've got to figure out."

He turned into the road that led north to his homestead, and stepped along chuckling to himself and swish-

ing at the heads of the young green weeds with his cherrywood stick, as the wonderful plan opened before him.

Here was a girl for Bill! A pretty girl, a competent girl. Not one of your silly dressed-up dolls but a girl who wanted to help people, to do things for people, a girl who, he was sure, would appeal to Bill.

"She's got to meet Bill. They've got to get acquainted," he said as he marched along. Now the thing was to get her back to Crystal Creek as soon as possible, using what as the pretext? That was the question. He looked up from his musings to meet the direct brown gaze of Donnie Maddox, aged ten.

"Hi!" said Donnie, his freckled face beaming.

"Hi, yourself! Been to school today, young fellow?"

"Me? No! Mary's got the measles. Quite a few kids in school got measles."

"Measles, eh?" said Jim. Then as the implication of what the boy said hit him, his grey eyes narrowed and he looked back down the road toward the corner where stood the store and, across the road, the school.

"Has the nurse been out to school?" old Jim inquired innocently.

"What nurse? No nurse been out to our school." Donnie's brown eyes were indignant. "We ain't seen no nurse." He ran off. "Got to beat it to the store. So long," he called.

Old Jim Taggart marched along the road to his homestead, whistling blithely, his cherrywood stick smiting weeds right and left, his thin shoulders squared, his 70-year-old back erect and straight.

HE was at the crossroads store at 10 o'clock the next morning, when the blue coupe, with Kay Reynolds at the wheel, pulled up in front of him. He opened the door with a flourish and Kay, smart in her nurse's uniform, her blue eyes as bright as he remembered them, her brown hair smooth and shining, jumped out.

"Right on time," he said. "I didn't think when I 'phoned you at eight you'd get here so quickly."

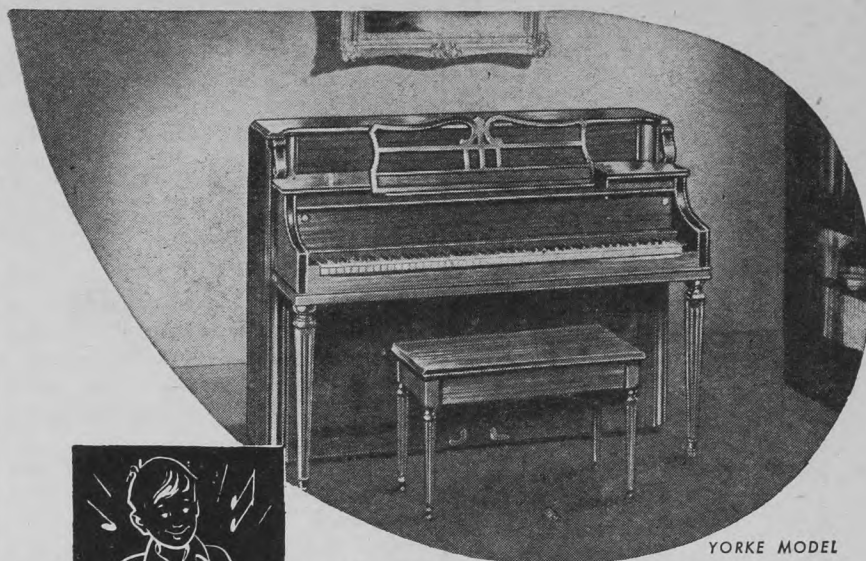
"And I didn't think when I left you yesterday that I would be back up here so soon, either," she said smiling. "I shall have to hurry, too. I have a case coming into Wexford this morning."

The beaming smile left old Jim's wrinkled face. "Dang it all," he muttered, "I thought . . ."

Apparently she hadn't heard because she went on, a worried frown on her forehead. "You said over the 'phone that a rash had broken out among the children . . . It looked



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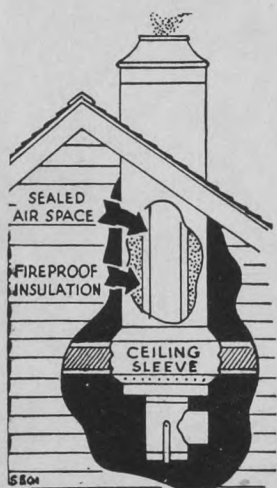
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dangerous . . . Sore throats too! Might possibly be scarl . . .

“Hey now! I didn’t say it was fever.” Jim shook his grey head. “I don’t know about such things. I just said maybe you should investigate. Some of the kids are home . . . some at school . . .”

“I’ll go right over,” she said, “and thank you very much, Mr. . . .?”

“Taggart. Jim Taggart,” he said respectfully. “I thought you’d want to know.” He smiled with his candid grey eyes. “About the kids, I mean.”

“Thank you again,” she said. “That’s the school across the road, isn’t it?”

“It sure is. I’ll wait here, an’ you can tell me what’s what when you come back.”

Old Jim went into the store and watched from the window as she walked briskly across the road to the school. He liked her decisive little steps. He liked her dainty blue-clad figure. He liked her air of quiet efficiency. He liked her looks. In fact, he liked everything about her . . .

She was back in a very short while. He met her at the door, pretending great anxiety. “I hope . . . I hope it isn’t bad?” he said.

Her direct blue gaze met his. “You don’t know anything about children’s diseases, Mr. Taggart?”

“I sure don’t,” he said humbly. “I’m an old bachelor.”

“Measles,” she said simply. “Not bad, either. Rubella! I’ve sent a couple home . . . Nothing to worry about . . .”

“Well, I’ll be danged,” he said. “But it’s a good thing you came, isn’t it?” His grey eyes were twinkling at her.

“We—lll! I suppose so,” she said rather reluctantly, “but I must hurry back now. I guess you did what you thought was best, Mr. Taggart, when you phoned me . . .”

She stepped into the car and her blue eyes were wide and questioning, as Jim, his wrinkled brown hand on the sleeve of her blue uniform, said, “Just a minute, Miss Reynolds . . . I have a great favor to ask . . .”

As she waited quietly, listening, he told her about Bill’s injured hand, describing the jagged cut the sharp-edged willow root had made, the careless disregard that Bill was showing.

“It looks real bad, Miss Reynolds,” he finished. “I wish you could spare the time to look at it.”

She opened the car door. “Get in,” she said. “Is it far to this man’s farm?”

Old Jim Taggart climbed in with avidity. “Just up the road east a piece,” he said. This man! he thought, and chuckled. One of these days she’ll be calling him something different . . .

AS they neared Bill’s house, old Jim saw with elation that the little nurse’s blue eyes were sparkling as she looked at the fields of wheat, young and green beneath the sun, the neat fences, the tidy front yard with its fresh green grass plot and shady tree, and the comfortable white house.



“Your wife told me where to find you, sir. Now, what is your opinion of the 40-hour week?”

“You like farms?” he said, as the blue coupe drew up in front of the gate.

“Love ’em. I was brought up on a farm. Then, when my dad and mother died, I went into training.”

Jim opened the gate for her exultantly. Everything was turning out simply grand. She was a farm girl. She loved farms. Just the girl for Bill. Just the one girl in all the world.

The kitchen door opened and out came Bill. He stood, his dark eyes wide, staring at old Jim and his companion.

“Hi, old timer,” he yelled, “where’ve you been till now?”

“Er . . . er . . . How’s your hand feel, Bill?” quavered old Jim. “Your hand . . . where you hurt it, you know? How is it?”

Bill’s eyes were completely mystified. “My hand?” he shouted. “What’s the matter with you? Where’ve you been? I thought you were coming at eight to burn the piles.”

“Th—th—this is M—M—Miss Reynolds,” stammered old Jim miserably. “She’s a nurse. She’s come to fix up your hand. Your bad hand,” he said forcibly. He tried in vain to catch Bill’s eye.

“What are you talking about?” Bill’s dark eyes were flashing angrily now and his black brows looked formidable. “I have not got a bad hand.” He waved his left hand in the air. “You mean this scratch? She’s

sure wasting her time if she wants to see this.”

“Indeed I am wasting my time.” Miss Kay Reynolds’s voice was like ice breaking in a water trough in the frosty days of late fall, but her cheeks were a lovely bright rose color.

“Mr. Taggart brought me up here for no reason at all apparently. I can see from here that there isn’t much wrong with that hand. Possibly soap and water would cure what there is . . .”

She swept around, her brown head high, and swished through the gateway. Then, as her glance fell on old Jim’s sagging shoulders and air of crushed misery, she said more gently, “Perhaps you were mistaken, Mr. Taggart, in the extent of your friend’s injury.”

Then she was out of the yard, into the car. The door slammed, the engine roared, and she was gone in an indignant cloud of dust.

“Well, you did it,” said old Jim, to a bewildered and angry Bill. “You did it that time.”

Bill’s dark eyes were stormy. “I don’t get it,” he said. “What’s the idea of bringing that woman here?”

“Dang it all,” said old Jim, “she ain’t a woman. She’s a girl. A danged fine girl, a pretty girl. I thought she could fix . . . your hand. She’s a nurse . . . Forget it. Let’s go and set fire to those root piles.”

THE day dragged on. Old Jim said no more to Bill about Kay Reynolds. Even when Bill, all over his bad temper, grinned and said, “she sure was mad! Sure has blue eyes, the bluest I ever saw, I think.” Still old Jim didn’t discuss her. He was cast down, very cast down.

He caught a ride home that evening with the truck from the creamery at Wexford. He sat in sombre silence until the driver, a blond, amiable young giant suddenly said, “Boy, that’s some district nurse we’ve got at Wexford now. I passed her in that blue coupe of hers as I came out. Some girl! Yes, sir!”

Jim looked at him without comment, and the lad continued, “She don’t seem to date though. Won’t step out at all. Wonder why. Could be she’s engaged to somebody. I’m going to try for a date tonight though . . .”

Old Jim’s wrinkled forehead creased in an angry frown. This was the worst of all. There she was in Wexford, the prey of truck drivers and bank clerks, bookkeepers and merchants. While Bill, the idiot, hadn’t the sense he was born with . . .

Well, thought old Jim Taggart, guess I’ll have to butt in once more. Danged if I won’t. He couldn’t sit back and see his wonderful scheme for Bill’s future disintegrating before his eyes. He looked out of the corners of his old grey eyes at the truck driver, and said,

“Sure Miss Reynolds is engaged. She’s engaged to Bill Wakefield. They knew each other way back when . . .”

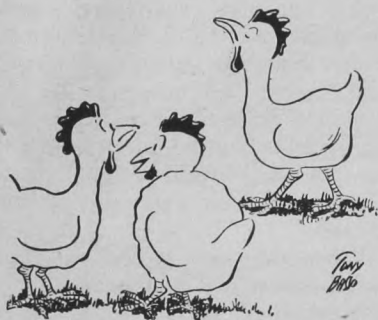
“You don’t say?” The truck driver turned his astonished gaze on Jim and narrowly missed exterminating an innocent white rooster. “So that’s why she don’t date.”

“That’s why,” said Jim calmly and clearly.

Old Jim walked from the cross-roads corner north, as the truck rumbled off west. He walked slowly. He was beginning to feel a little out of his depth. He knew he shouldn’t

have said what he did, but there was a dull ache in his chest when he thought about Bill. If only, if only things would work out right.

Bill'd kill me if he knew what I said, he thought miserably. Danged if he wouldn't. But them two are just made for each other; only how'm I ever going to prove it to 'em?



"I'm told she has a double-yoke complex."

They had finished the burning of the piles and were fixing up the dynamite for some of the spruce stumps three days later, when Bill, shielding his face from the sun, looked toward the road and said suddenly, "For Pete's sake, there's that blue car again. Wonder what that girl wants this time?"

There was more than casual curiosity in his tone, and none of the annoyance that old Jim had heard the other day. Instead, there was something in Bill's dark eyes that made a glint of satisfaction appear in old Jim's grey ones.

At the same time he felt a peculiar fluttering in his chest, and he said nervously, "I guess I'd better get over

to my dynamite." He looked anxiously at the slender blue-clad figure that was stepping with determination across the cleared space, where ashes of root piles still smouldered.

"You stay here," said Bill. "She isn't coming to see me."

When she reached the two figures, they could see that she was very angry. Her blue eyes seemed to blaze and her pretty mouth was grim. She carried a newspaper, which she unrolled as she came near, and without further preliminaries said,

"Good morning. I wonder if you will tell me why this awful mis-statement should appear in the paper."

SHE thrust the paper in front of Bill's astounded eyes and old Jim, standing beside him, saw that it was the Wexford Herald. His old heart beating very quickly, he read the words as Bill pointed to them: "We have it on good authority that our popular district nurse, Miss Kay Reynolds, will shortly enter the holy bonds of matrimony with one of the most eligible farmers of Crystal Creek, Mr. Bill Wakefield. Our congratulations to the happy pair."

Her pretty face was alternately crimson and deadly white, as she stared up at Bill. Her eyes blazed and then looked as if she were going to cry.

Bill stood, looking down at her as though he'd never seen a girl before.

"I-I c-c-can't understand! I don't understand!" he stammered. "Why... I don't... I mean, I don't even know you..."

"But why did you? Why did you tell them?" she said, her voice trembling.

"What made you say such a thing?"

"Me?" His dark eyes blazed incredulously.

"You didn't tell them? It wasn't you?" she whispered.

"Of course, I didn't," he said definitely, but his dark eyes lingered on her flushed and pretty face, on the consternation in her blue eyes.

Old Jim Taggart drew a long deep breath. His lean shoulders in the worn leather jacket stiffened. He stood in front of the small brown-haired girl and the tall dark young man.

"I did it," he said, "I told a thundering big lie. I wanted to stop Kay having dates with the Wexford boys. I... I hoped maybe my lie would... would come true. I guess I'm

just... a danged old... interfering old fool."

He left them staring into each other's eyes, and went across the field to the big stump. He'd finished it! He, with his grand schemes, had put the finishing touch. She would be going now. She would march off, out of Bill's life, and Bill would be sourer than ever. He'd hate women forever.

Old Jim looked at the dynamite and the fuse. He looked over at the two people who were still standing over there in the field. A sigh shook his thin old body. He shoved in the dynamite, a funny little smile curving his lips. He was an expert with dynamite. He knew just what he could do with it!

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"Hey!" yelled Bill suddenly. "What are you doing, you crazy old idiot? Get out of there! Hurry! Get out of there! What's the matter with you?"

Old Jim grinned again. He started back toward Bill and Kay. He didn't run; he walked slowly; his shoulders square, his back straight. They were shouting and running toward him.

"Run, you old fool," yelled Bill again.

There was a loud roar. Old Jim's ears seemed to be filled with water. There was a continuous roaring; something seemed to rise from the rooty ground and hit him. A terrible pounding began at the base of his skull; then blackness descended on him.

WHEN he opened his eyes he was in the living room at Bill's farm. He closed them again quickly, but not before he had seen the two figures, Bill and Kay, standing by the window and Bill's arm around her slender waist.

Her lovely blue eyes were lifted to the thin dark face of Bill, and old Jim heard her soft voice saying, "But why, Bill? If he is so good with dynamite, why did he take a chance like that?"

Old Jim listened avidly, turning his head so that his good ear was uppermost. He would have liked to peek again but he didn't dare. He heard Bill say tenderly, "The old fellow figured it would bring us together, I guess . . . Stop you going away mad. And it worked, didn't it darling?"

Darling! Bill called her darling! It had worked after all! He had done it. He had done it! Old Jim sighed, a long, deep sigh. He opened his eyes again. There was something lying be-

side him. It was his arm. He lifted it. It was still attached to him.

"He's coming out of it," said Kay, turning from Bill's arms that seemed loath to let her go. She moved swiftly toward the living room couch on which Jim lay, and he felt her soft hand on his forehead.

"Dang it all! I sure am," old Jim quavered weakly. "I'm danged if I'm dead yet!" He could smell coffee, good coffee!

"You making some coffee, Bill?" he asked. "You sure can make good coffee."

"Bill isn't making the coffee, Mr. Taggart," said Kay gently. "I'm making the coffee, and it is good."

"You bet it is," said Bill. He stood beside Kay, looking down at old Jim. "And you know what, old timer? One of these days Kay'll be making the coffee around here for always."

Old Jim's tired grey eyes looked from the little nurse's flushed and happy face to Bill's dark eyes which held a new light in them. Something seemed to choke him, and he swallowed hard.

"Would you like some coffee, Mr. Taggart?" said the low voice of the little brown-haired nurse.

"I sure would," said old Jim, "but, dang me! Don't call me Mr. Taggart."

"What shall I call you then?" she asked as she bent over him, her blue eyes smiling down at him.

Old Jim Taggart's grey eyes were weary but a tiny, dancing light crept into them. He snuggled down under the grey wool blankets; his wrinkled old brown face broke into a grin as he said clearly and distinctly,

"Just call me Cupid!"

A Glass Nameplate

For those who live near a road, a nameplate is a useful addition to the porch

by PAUL HADLEY

IT is a simple matter to make a glass nameplate for your door. The materials are few and inexpensive, and probably will cost nothing at all other than an hour or two of work. All that is needed is a small piece of

a little quick-drying varnish will do. Being painted on the back of the glass, all lettering will be in reverse. Unless one is an experienced letterer, the easiest way to do this lettering is to first make the letters on a piece of white paper (in reverse), lay this under the glass, and then do the painting by following the lines through the glass. A small brush, preferably a flat quarter-inch sable sign painters' brush is used.

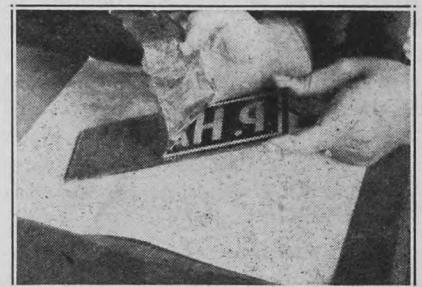
When the paint is dry, a layer of tinfoil is fastened to the back of the glass. A good way to "glue" the foil to the glass is to give the entire back of the glass a coat of the clear varnish



Painting the name plate on the back.

thick glass, some black paint and a small brush, and some tinfoil. The glass may be salvaged from nearly any workshop or junkpile; one of the nameplates shown was made from an old, discarded automobile rearview mirror from which the silver coating had been scraped. The other example illustrated here was a small piece of window glass, cut to shape.

The lettering is applied on the back of the glass with thick, black paint. Ordinary enamel or house paint is as a rule not dense enough; better get a tube of lamp black, ground in japan, from the paint store, or the same material in linseed oil and mixed with



Backing the glass with tinfoil to make the letters look like silver.

right over the paint, then smooth the tinfoil down to the glass surface, and set aside until the varnish dries. Unless exposed to rains, such a nameplate will last for many years.

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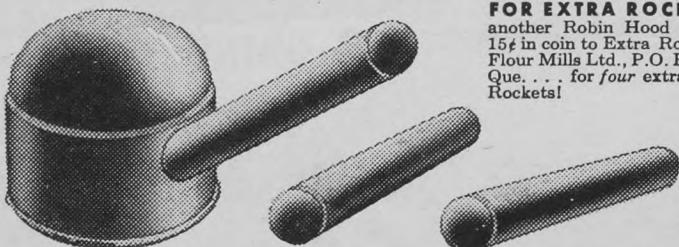
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The Country Boy and Girl

Two Red Tulips

by MARY E. GRANNAN

ONCE upon a happy time, long, long ago, a strange thing happened in Holland. The bells in the church in the valley were ringing out merrily, and telling the people in the valley that their lovely Princess, Janneke, would wed Hans of Stavoren, on the morrow.

Janneke and Hans, who were strolling in the tulip fields heard the bells and sighed happily.

"Do you hear them, Hans?" said Janneke, "Do you hear the message of the bells?"

"I hear them, Janneke," said Hans. "They are telling me that I am to wed the most beautiful princess in the world . . . more lovely in truth, than these red tulips, around and about us." Hans plucked some of the flowers and held them out to Janneke. "Carry these, my princess, next to your heart. Red is the color of true love."

And with the red flowers close to her heart she turned, with Hans, toward the sea, and there they sat looking across its blue water. Janneke laughed suddenly and said to Hans, "See those crags over yonder, Hans?"

Hans nodded. "See if you can throw a rock that far. I don't think you can."

"You don't, eh?" laughed Hans. "Hah! You do not know the strength of Hans of Stavoren. Watch this!"

The young prince picked up a sharp rock, and threw it toward the rocky jutting crags. He made his mark, and was just about to make a mocking bow to Janneke, when a loud, angry shriek came from the crags. It was followed by a splash.

"What is it, Hans?" asked Janneke in alarm. And then she saw what it was. A merman was swimming toward them. Janneke answered her own question.

"It is a man of the sea, Hans. You struck him with the rock. He is angry," she said.

"He can do us no harm, my princess," said Hans. He called out to the oncoming merman. "Good evening, merman. I'm sorry my rock struck you. I didn't know you were on the crags. A thousand apologies."

"A million apologies would be too few, Hans of Stavoren," said the merman. He laughed. "You see, I know who you are. I have heard the bells in the valley. But there will be no wedding tomorrow. I am going to bewitch you. I am going to cover you with my sea magic."

"No, no," cried Janneke in alarm, clutching the red tulips more closely to her heart.

"Yes, yes," said the angry merman, "and your flowers have given me an idea. Because of the injury you have done me, Hans of Stavoren, I am going to turn you and your lovely Janneke into two red tulips, and you will grow side by side in the tulip gardens forever more."

"You cannot do this, merman," said Hans.

"But I can, and will," said the merman. He laughed now, as he went



BOYS and girls welcome crisp, cool October days. The busy time of harvest is over and you can enjoy the few fine days before winter comes. The outdoor world is full of the brilliant color of autumn leaves overhead or rustling under your feet.

"What fun we shall have at Hallowe'en!" Funny costumes are brought out, Hallowe'en parties are planned, all kinds of apple games are ready and candy is made. Here is an easy recipe to use for your candy, one which cannot fail and will not cost too much to make in large quantities for a party. It is called Puffed Wheat Candy. Mix together 1 cup brown sugar, ½ cup butter, ½ cup corn syrup, 3 tablespoons cocoa and 2 tablespoons vanilla, boil this for five minutes to make a syrup, then stir in 8 cups puffed wheat and pour out into a large flat pan and pat the mixture down level with a spoon. Let your candy cool, then cut in squares ready to serve.



Perhaps you would like to make a Hallowe'en noise-maker. Here is one called "Tick-tack-toe." Just use a spool and with a knife notch both ends completely around. Then wind a piece of string around the spool, hold the spool against the outside wall of a house, as shown, and quickly pull the string and you will be able to make a most ghostly sound.

Ann Sankey

on. "But because it is your wedding eve, I shall give you a way out of the enchantment. On the day that someone ties the two tulips that you will be, together with red ribbon, the color of love, the enchantment will be broken."

And in spite of their pleas for mercy, he spun his magic, and on the shore where Hans and Janneke stood, there remained only a bunch of red tulips and two tulip bulbs. Hans and Janneke had vanished from the face of the earth.

A short while later an alarm was spread over the Kingdom. "His Highness, Hans of Stavoren, and the Princess Janneke have disappeared."

The search was widespread. "It is strange," said one of the soldiers of the King. "I found footprints toward the sea shore. I followed them, but when I reached the shore, all I found was a bunch of red tulips and two tulip bulbs."

"A merman has bewitched them," said an old lady. "They have been enchanted."

"Everyone laughed at the old woman, and told her to be still. 'Have it your way,' said the old lady, 'but will you give me the tulip bulbs that I may plant them and tend them?'"

The tulip bulbs were tossed to her, and the search went on. The old lady planted the bulbs in her garden and she looked after them tenderly, assured in her heart that in her garden, there in the sun, stood the lost prince and princess. But she knew not how to break the enchantment.

One day she gathered her family about her. "I want you to make me a promise," she said. "Care for these two red tulips when I am gone. Someone, some way, some day, will find the way out of the bewitchment."

It was one hundred years later, that little Griselda released Hans and Janneke from the strange enchantment. There had been a storm, and the two red tulips had been beaten

stance, looks grander still when seen across a lake or river where the tints of the sky are mirrored in the water beneath.

When you start out to draw reflections in the water, if you are sketching an actual scene outdoors, you need only remember that any object reflected in still water will have a reflection exactly the same depth, in reverse, as its own height from the water's surface. (If the object is distant from the water, imagine the water's surface extended to where it stands.) The sketch at A will give you an idea. The preliminary drawing would be freely and lightly sketched in (with pencil), as at B, then worked up in more careful detail as you go. This drawing was finished in crayon and pen and ink about twice reproduction size, but the preliminary drawing for a water color would be begun the same way.

In painting sky or water, the thing to remember is not to make it dry or rough looking by niggling and working it over and over. Decide what tints you are going to use and paint freely and boldly, using plenty of water. You may find it more convenient in painting the sky to turn your drawing upside down and work from the horizon toward the upper sky, where the deepest color will be.

The water will reflect the color of the sky in a lower tone, except on a windy day, when it may be dark blue or silvery grey, depending on the angle of the sun. The reflection of a light object is usually a little darker, the reflection of a very dark one is usually lighter or greyer. When painting water, let it get almost dry, but not quite, before painting in the reflected trees, etc. The reflections will then have a soft, blended edge and will not look like cardboard shapes cut out and pasted on. Look for long, horizontal lines of light cutting through the reflections—they help establish the surface of the water.

Next time you pass a still pond, study the reflections. Then toss a pebble into it and watch their changing shapes: the more study, the better painting.

down by the rain. "Oh, you lovely things," said the little girl. "I must tie you up. I shall drive a stake and tie you together with a bit of string." Then she smiled. "No," she went on, "I shall tie you with the red ribbon from my hair."

She did. No sooner had she slipped the knot than lo! Before her stood Hans and Janneke, the lost prince and princess.

They were wed in the church in the valley. Griselda was flower girl.

That night the sea tossed in anger, as the merman lashed about screaming, "The spell is broken! The spell is broken! They will live happily ever after!"

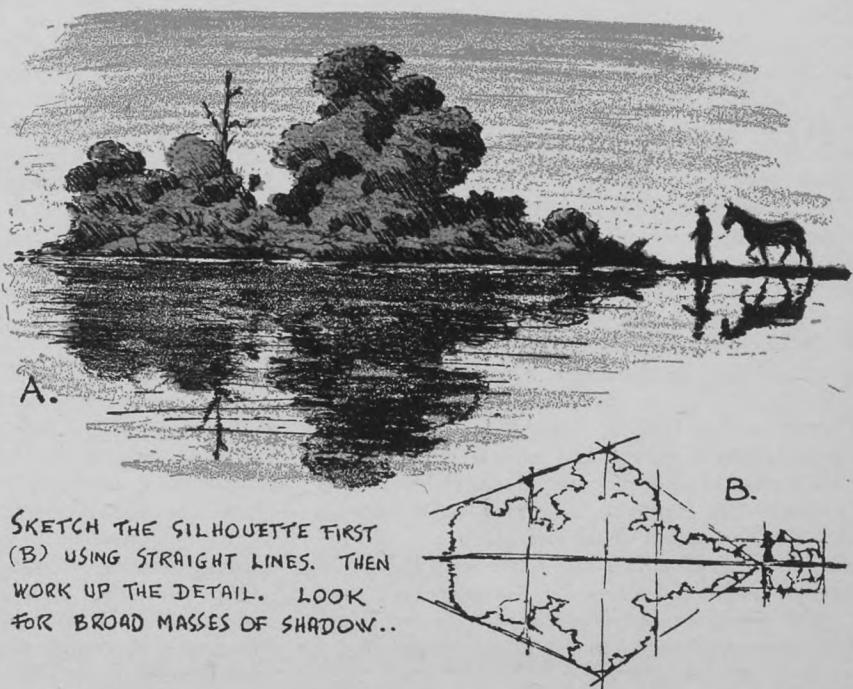
They did.

Reflections in Water

Part II of series.

by Clarence Tillenius

REFLECTIONS in water are always interesting to the artist, and are often used with beautiful effect in painting. A colorful sunset, for in-



SKETCH THE SILHOUETTE FIRST (B) USING STRAIGHT LINES. THEN WORK UP THE DETAIL. LOOK FOR BROAD MASSES OF SHADOW..

THE *Country* GUIDE

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THE NOR'-WEST FARMER and FARM and HOME
Serving the farmers of Western Canada Since 1882

VOL. LXIX WINNIPEG, OCTOBER, 1950 No. 10

Responsibility Declined

On this page of the August issue we had something to say of the origin and consequences of the Canada-U.K. Wheat Agreement. The Winnipeg Free Press has taken strong exception to that editorial, and in its issue of September 29 charges this journal with misquoting the public record and misrepresenting what actually occurred in a conference which was held in July 1946 in the office of the minister of trade and commerce.

As we have as much pride as has our critic in the standard of journalism we have established over a period of more than 40 years, we invite our readers to study for themselves the statements made by Rt. Hon. J. G. Gardiner, minister of agriculture, on two occasions when he dealt with the only meeting with farm organizations at which the Canada-U.K. Agreement was even mentioned prior to its completion by the contracting parties. The minister's statements will be found in two places; unrevised Hansard of August 14, 1946, at pages 4883 and 4884, and again February 28, 1947, on page 922.

Our critic, in its editorial comments on this meeting uses these words:

"The reference is to Hon. J. G. Gardiner's speech in defence of the Wheat Agreement in which he said . . . that two days before the Agreement was signed the Minister of Trade and Commerce and himself 'called in the representatives of all the farm organizations and recited to them the terms of the contract.' They were asked directly and officially if they approved. They did approve and only then did the government sign the Agreement."

We say without hesitation that any impartial reading of Mr. Gardiner's statements on the two occasions will clearly show:

1. That the meeting in question was not held to discuss the British Wheat Agreement but for quite a different purpose, that is to discuss the initial payment to be paid under the five-year pooling plan. The minister makes this clear in his address of February 28 (unrevised Hansard page 922) where he says:

"The meeting was held for the purpose of discussing what the initial payment ought to be under this Agreement. *We were in a position at that time to inform them what the British Agreement was because it had all been agreed to.*" (Italics ours.)

2. Notwithstanding the fact that, according to the minister (unrevised Hansard, page 4481) this contract had been under discussion with the government of Great Britain at various times from January, 1946, its terms were first made known to the representatives of all farm organizations at the meeting in question *after* they had been settled, and only two days before the Agreement was signed. Surely if the Government of Canada had wished to share with farm organizations generally some responsibility for the terms of the Agreement they would have approached them during the period of discussions and not after it was finally settled.

3. Nowhere does Mr. Gardiner say, as alleged, that they (the farm representatives) were asked directly or officially if they approved, nor does he say anywhere that they did approve. Mr. Gardiner has an enviable reputation as a clear and forceful speaker, quite able to express in plain words what he wants to say. Had he received from these farm representatives a direct and official approval, he would have said so in plain language. In his address of February 28 (unrevised Hansard, page 922) he states that he asked these delegates two distinct questions, *both of which had to do with the initial payment under the proposed five-year pool*, and to these questions he received the answer "Yes." He then says, "*beyond that I do not know that I had their consent to this.*"

Our critic states that the purpose of our editorial was, on behalf of United Grain Growers Limited, to dodge responsibility for the Canada-U.K. Agreement. That company placed itself on official record on August 2, 1946, only a few days after the meeting was held in Ottawa. The statement of the then president of the company reads in part as follows:

"It should not be concluded that this obviously temporary and experimental program provides any permanent system on which western farmers can rely for long term security. Prosperity of wheat producers will, in the future as in the past, depend largely upon Canada's success in marketing wheat in many different countries; and upon prices determined by conditions largely outside Canada. No single contract and no system of pooling returns over a period of years can make up for that fact."

Thus a word of caution was sounded by that company only a few days after the Ottawa meeting, and before the minister made either of his addresses in parliament.

Again, within a few months of the Ottawa meeting, the board of directors of that company, in its annual report to the shareholders disclaimed any responsibility for the origin and terms of the Canada-U.K. contract, but counselled farmers that, inasmuch as the Agreement had been completed between the respective governments, it would be wise to wait until the results of the experiment were known before approving or condemning the Agreement. The company did not wait until the results of the Agreement were made known to make that official statement to its shareholders. That statement was made in its annual report, November, 1946, was published in various papers across Canada, as well as going to over 40,000 shareholders. The same statement was repeated in subsequent years and has never before been challenged.

In trying to establish a case against United Grain Growers Limited our critic relies upon the ingenious argument that most of the farm organizations, including the Canadian Federation of Agriculture, approved the Agreement. It suggests too that Mr. Hannam, president of the Federation, claimed authorship of it. Fortunately the Federation is a democratic organization. There is no regimentation of its members. To what extent the minister may have consulted with individual farm leaders we do not know. We assume he had his own reasons for thinking that the Agreement would be acceptable to western farmers. We simply affirm, as we did in our previous editorial, that farm organizations generally were not consulted officially, and the U.C.G. was not consulted prior to the meeting in question, at which time the terms of the Agreement had been settled.

We need offer no apologies for our August editorial. It was honest in purpose and it was correct.

Inflation and the Budget

Mr. Abbott is a prudent budgeteer and, judged by past performances, his new tax increases will be more than adequate. It can also be said that they have been well received. Heads of families, plagued by rising living costs are thankful that personal income taxes were not raised. Business expected something worse than the five per cent increase in the corporation tax. Some crocodile tears have been shed over higher prices for candy, pop, alcoholic beverages, and certain classes of luxuries, but taken altogether it was as nearly painless as such an operation could be.

In another aspect the emergency budget falls short of expectations. The gravest domestic problem of the day is mounting inflation. Since the turn of the year wholesale prices have jumped 6.4 per cent, and the cost-of-living index stands at an all-time high. The defence measures now authorized will exert further strong inflationary pressure, and the man in the street is anxiously asking where it will end. So serious has this problem become in most of the free nations of the world that the prime minister of Australia, speaking in Ottawa last month, declared that the democracies were facing three jobs: to resist aggression; to expand their economies; to prevent inflation from destroying them.

Mr. Abbott's budget speech showed complete awareness of the dangers of inflation, and he spoke fair words about meeting them, but one scans his tax changes in vain for a sign of adequate anti-

inflation measures. The government rejects proposals for controls on prices and wages on the ground that the public is not ready for the inconveniences and sacrifices attending them. It prefers an increase in the corporation tax to an excess profits tax, a choice which may have inflationary tendencies, however preferable it may be for other good reasons. Mr. Abbott issued sound advice to public and private business to keep new construction and investment projects under careful review, but each individual is to go his own way practically undeterred by fiscal policy. There will be some tightening of credit. But controls remain where they have been throughout the steady inflationary rise that began with the dismembering of WPTB. It is not a picture to cheer that large class of citizens who have no means of increasing their incomes to keep pace with runaway inflation.

Western European Defence

Events of the past summer have turned men's minds sharply to questions of defence. Ever since the western allies demobilized their armies they have been aware of the growing disparity between Russia's readily available striking force, and the armies which might be brought into action to ward off attack from the East. Captain B. H. Liddell-Hart, one of Britain's foremost military critics is our authority for stating that the Russian army is now four times as big as Hitler's on the eve of 1939. On the other hand, the French army, which would provide the backbone of resistance to Communist invasion, now numbers five divisions as compared to 30 divisions before Hitler struck, a number which was immediately trebled on French mobilization.

The other Atlantic nations are in no better case. Captain Liddell-Hart declares "that it is hard to see how anything approaching the figure of 50 divisions for the covering force in western Europe could be produced from the present contributors, France, Belgium, Holland, Britain and the United States. Even with the much expanded program recently adopted, it would be remarkable if more than two-thirds of that requirement were attained in the next three years."

Mr. Churchill's proposal for Canadian military participation has met a variety of response in this country. The people of Canada naturally recoil from a repetition of the tragic experiences of the past two wars. They are too far removed from the threat geographically for a wide public realization of its terrible urgency. The quarrel seems to be none of their making, and they earnestly pray to be allowed to go their ways in peace. Mr. St. Laurent undoubtedly spoke for the majority of the people of his province, and for many elsewhere, when he declared that Canadians would be too busy making the munitions of war to be able to contribute military forces for the defence of Europe.

Is this the best answer Canada can give at this juncture of world affairs? The only hope of preserving such peace as we have lies in maintaining unified strength on such a scale that our adversaries will not risk an attack. Is Mr. St. Laurent's answer one which will contribute to the cementing of a strong, confident alliance?

Already our partners in the Atlantic Pact are beginning to talk about the inequalities of sacrifice which various nations are being called upon to bear in support of western democracy. France, which has never really recovered from her blood-letting in 1914-18, contemplates without relish the role assigned her of providing the major ground force, and is asking for uniform mobilization measures across the board. British periodicals point out that Canada's recently increased military budget raises the proportion of the Canadian national income allotted to defence from three to six per cent, whereas in the United States it is increased from six to ten per cent, and in Britain it is from eight to ten per cent. American commentators make no secret of their disappointment over Canada's lag in common plans for united action. Our stake in the business is the same as theirs. It is folly to expect to escape military participation and to look forward to continued enjoyment of a rising standard of living while others are accepting the burdens imposed by threatened aggression. Canada deserves a more creditable statement of intentions than any given by the prime minister to date.

\$800,000 for a "Hit"

Swing tunes which your radio grinds out by the hour represent a harvest for somebody, and some of the gains amassed in this manner add up to considerable totals

by PATRICK DOYLE

THE song writing business is one of the most profitable once you get that certain gift which tells you how to string a lot of sentimental words to a catchy air and make a "hit" tune. But for every 100 song writers at the game today only about 10 reach the big money class.

Irving Berlin is probably the greatest example of this for he is a millionaire after writing over 800 songs, 350 of which are very well known. Millions of copies of his songs have been sold. Yet Berlin has but a scanty education and certainly no musical training.

What he did learn in his teens as he sang for a living in New York's Bowery was that sentiment paid the best dividends. Pathetic songs that jerked the heart strings and moistened the eyes were always favorites, and so Irving went into the song writing business himself.

His first effort, "Marie," earned him 34 cents. That was 41 years ago. Today he is at the top of the ladder. The film, "Blue Skies," for instance, for which he wrote the songs and collaborated in producing, netted him close on \$250,000, plus 12½ per cent of all gross takings over \$2,013,750.

Another millionaire song writer is Horatio Nicholls, whose "Among My Souvenirs," written in 1927, brought him \$80,000. It was revived in the film, "The Best Years of Our Lives," and is expected to earn another \$80,000.

Probably the most prolific writer was Scott Bennet, who wrote over 6,000 songs. He sold his first for \$5, but in time made thousands from such favorites as "Take Me Back to Dear Old Blighty," and "By the Side of the Zuyder Zee."

The paradox of the song writing business is that there are no set rules to follow, no fixed recipe for success. Hundreds of songs are composed annually, but only about five per cent, become "hits."

Crazy songs like "Woody Woodpecker" are successes overnight. Four million records and 250,000 copies of "Open the Door Richard!" have been sold on this continent, and its composers, Jack M'Vea and Dan Howell, are \$150,000 the richer.

IN wartime some extraordinary songs became "hits." "Roll Out the Barrel" was first sold under a different title for \$3 just before the last war. It was then just a song without words, written by a love-sick Czechoslovak composer, but an American publisher heard the tune and got a song writer to put words to it. When the war ended a surprised composer received over \$80,000 for a melody he had long forgotten.

In the first world war Ivor Novello wrote the touching piece of nostalgia, "Keep the Home Fires Burning," and earned himself over \$64,500. "Tipperary" was another hit of that

period, which grossed \$72,500 for its composers, Jack Judge and Harry Williams.

How do song writers get their ideas? Well, here is what Johnny Mercer, who wrote such "hits" as "Blues in the Night," "Tangerine," "I'm an Old Cowhand," and "Lazy-bones," says:

"Sometimes the whole lyric comes in a big rush; sometimes it takes months. You don't write them all in 30 minutes. Once you get your first draft the real work of changing, polishing, editing, and rewriting begins."

It took Mercer three weeks to write "Ac-cent-tehu-ate the Positive," and he got the ideas from his psychologist, whom he consulted about his insomnia. "You've got to accentuate the positive," advised the doctor, and that was what Johnny did—and earned \$20,000.

It took Mercer only half an hour to write, together with Harry Warren, "Atchison, Topeka, and Santa Fe," and it earned him a total of \$40,275. He got the idea from the destination boards on a freight train which held him up at a level crossing.

Altogether Mercer has written 500 songs, 300 of which were published. His annual income is \$80,000.

WHAT is the best time to compose? The highest paid team of song writers is Johnny Burke and Jimmy Van Heusen, who take in over \$240,000 a year between them for writing nearly all Bing Crosby's "hits"—and they do it from midnight until dawn. Van Heusen sips milk, while Burke consumes about a gallon of black coffee. Their quickest written number was "Sunday, Monday, Always," completed in an hour.

They can write anywhere. In Bing Crosby's playroom they produced "Going My Way," "Aren't You Glad You're You," and "A Friend of Yours." Between races at Bing's private race track they wrote "If You Please," and telephoned it to the studio to be included in the film, "Dixie."

"Swinging on a Star," which has sold over 1,000,000 copies, has been recorded in 20 different versions, and has brought the two composers \$40,000 each, was the result of a conversation Burke had with the eldest of Crosby's children, Gary, who was complaining how he hated school. Burke was reasoning with him, pointing out how lucky he was not to be a fish which could not read nor write nor go to ball games.

The philosophy of this struck Burke and he contacted Van Heusen while the idea was fresh. The result was the "hit" of the year.

The song which is estimated to have made most money was "Valencia," composed by Joseph Padilla. It earned him \$805,000, yet poor Franz Schubert, who wrote 600 songs which are world famous only got \$24 for them.

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